STANDARDS DEVELOPMENT BRANCH (MOE)
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# REPORT ON THE 1987 INDUSTRIAL DIRE[C] DISCHARGES IN ONTARIO

OCTOBER 1988

Environment Ontario

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Minister

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## EXECUTIVE SUMMARY

The 1987 Industrial Direct Discharge Report is the annual update of the status of all industrial direct dischargers in Ontario. This annual report includes:

- monthly average loadings, yearly average loadings and effluent limits
- a description of the various effluents limits as requirements (by a legal document) or guidelines (a desirable objective)
- a compliance table - actual loadings versus limits, on a monthly and yearly basis - a discussion on compliance rules
- fish toxicity test results where available
- a description of the company self-monitoring and Ministry audit program
- a table of new Ministry enforcement actions
- a progress report on the Municipal Industrial Strategy for Abatement - MISA Program
- a description of the various sources and their effluent loadings
- trend analysis for three industry groups (petroleum refining, pulp and paper mills, primary steel producers) and initial indicator trends for the organic chemical manufacturing sector and mines

Six new sources have been entered into the Industrial Monitoring Information System, IMIS. Three sources were dropped from this report, two are now discharging to a municipal sewer and the third is a mine site that was not active in 1987.

Compliance with Ministry limits set by guidelines or requirements has improved slightly. All monthly averages were below the limits for 62 sources and the annual averages were below the limits for 105 sources, (out of 157 sources reporting) in 1987. Comparable results for 1986 were fifty-three for monthly averages and eighty-seven for annual averages out of 154 sources reporting.

Overall compliance with monthly limits was 88.1% compared to 86% in 1986.

The program report on MISA activities is highlighted by the promulgation of the General Effluent Monitoring and Petroleum Refining Monitoring Regulations in June 1988.

# REPORT ON INDUSTRIAL DIRECT DISCHARGES

# ONTARIO 1987

## 1.0 INTRODUCTION

The Ontario Ministry of the Environment (MOE) report on Industrial Direct Discharges for the year 1987 continues to include information published on sources in the 1986 report. Thus, part of the information in this report meets the requirements of Article VI 1(c) of the 1978 Great Lakes Water Quality Agreement (G.L.W.Q.A.). The Agreement states that an annual report, which includes compliance schedules and the status of compliance with monitoring and effluent restrictions, shall be provided to the International Joint Commission, (IJC). The portions of the Report related to the G.L.W.Q.A and thus to the IJC are identified (Appendix C and E).

Additional industrial sources are included in this report, over and above those in 1986. The effluent loadings and loading limits for 157 individual industrial plants are contained in this report, whereas in 1986 the number of sources reported was 154. Of the sources reported in 1986, 151 are reported herein, since two sources now discharge to a municipal sewer and the one source is a mine site that was not operational in 1987. More industrial sources will be reported in future reports; not all the direct discharges that MOE deals with have been entered into the Industrial Monitoring Information System (I.M.I.S).

The majority of the province's 12,000 industrial plants are not included in this report because they discharge into municipal sewers, and the process wastewaters are treated by municipal sewage treatment plants.

For 1987, the actual monthly and annual average pollutant loadings and flows, as well as guidelines or requirements are shown for each source. These requirements may be legal limits (Control Order, Certificate of Approval, Requirement and Direction, Federal Regulation), while the guidelines may be the Ministry's industrial concentration guideline objectives, Federal Guidelines or Best Professional Judgement criteria. In this report, the self-monitoring data for conventional pollutants and the inclusion of trace contaminant are presented as in last years report. Program reviews made by the Ministry include comparisons of effluent limits by various Regulatory agencies. Such comparisons are included in the progress sections for the Petroleum Refineries and the Pulp and Paper sectors.

Additional information is provided in the compliance section and in Appendix A.

## 2.0 INDUSTRIAL DISCHARGES - 1987 DATA

The 1987 report contains information similar to that presented in the 1986 Report. The monthly averages as well as the annual loadings and flows are reported. The bulk of this report consists of the Wastewater Discharge Summary contained in Appendix A. The Appendix summary sheets are arranged in alphabetical order by company name. Sources discharging to major drainage basins are noted in Appendix C.

The following information is presented for each discharge source:

1) The name of the discharger and the municipality in which the plant is located.

2) Its MISA sector name.

3) The receiving water body.

4) A description of the industrial activity.

5) Effluent quality as related to the industrial activity.

6) Effluent treatment equipment and systems.

7) The nature of the flow--continuous or intermittent; the means of discharge--surface, open pipe, submerged diffuser, or drainage ditch, and the number of discharge points.

8) Comments on the effluent in particular where the actual pollutant value has exceeded the limit which may be a guideline or a requirement (a mandatory legal limit).

9) The Ministry of the Environment Region and the District Office that deals with the discharger.

10) The average monthly effluent flow discharged by the source.

11) The average monthly pollutant load discharged by the source and limits which may be a guideline, a best professional judgement value, a legal number (set by Control Order, Requirement and Direction, Certificate of Approval or Federal Regulation). Some discharges are seasonal and thus twelve monthly results are not available. Some pollutants are measured on a quarterly or semi-annual basis.

12) Data on pollutants which are monitored but not limited.

13) Ministry fish toxicity data for some industries. Self-monitoring toxicity data were provided by the Petroleum Refining Sector.

14.) A compliance summary statement for each discharger based on the number of individual monthly limits exceeded out of the total number of monthly parameters monitored with limits.

## 3.0 EFFLUENT LIMITS

The Ontario Ministry of the Environment employs a variety of measures to achieve compliance with its requirements, ranging from voluntary measures, formal programs, Control Orders, Requirements and Direction, Certificates of Approval to prosecution. This will change as MISA will set minimum legal requirements across the province (see Section 3.5).

The implementation of pollution control is a co-operative federal/provincial endeavour. Under the federal Fisheries Act, national Regulations and Guidelines set effluent limits for specific industrial sectors. Federal Guidelines set minimum acceptable (see Appendix F) national objectives for existing plants, while Regulations prescribe national effluent limitations for new and expanded plants for various industrial sectors. The only exception is the federal Regulation for chlor-alkali plants which applies to both existing and new facilities.

Ontario has agreed, under the Federal-Provincial Accord for Environmental Protection, to adopt pollution control requirements which are at least as stringent as the national requirements. Since most Ontario plants are in the "existing" category, federal Guidelines apply to the vast majority of the plants in this report. Currently, these federal effluent

Guidelines and Regulations (year of promulgation) apply to: Pulp and Paper (1971), Petroleum Refineries (1973), Metal Mining (1977), Mercury Cell Chlor-alkali Plants (1977), Metal Finishing (1977) and Meat and Poultry Processing Plants (1977). Under the Fisheries Act Regulations, it is an offence to violate a regulation limit while under the Fisheries Act Regulations and Guidelines. While it is not considered an offence to exceed the guideline, there may be potentially an infraction of the general prohibition under the act, prohibiting the deposit (discharge) of deleterious substances into waters frequented by fish. Federal Guidelines are, in fact, statements that indicate which practices will be considered necessary by the Federal government to meet the intent of the Fisheries Act.

### 3.1 Legal Requirements

Legally enforceable Control Orders (which are negotiated) under Section 6 of the Environmental Protection Act may be issued to any existing plant. Control Orders define abatement actions and compliance dates by which these actions must be completed. Legally enforceable Requirements and Directions may also be issued under Section 51 of the Ontario Water Resources Act. The requirements for issuance of these documents are different in the two Acts.

As described above for some sources, there are federal Regulation limits under the Fisheries Act. Certificates of Approval (C's of A) for sewage works are issued under the Ontario Water Resources Act. In the past, the C of A was an approval to install pollution control equipment with the expected effluent quality, used as the basis for design, sometimes shown in the C of A. Recently, some sewage work approvals have begun to include effluent limits which are legally enforceable, since the required performance of the treatment system is explicitly defined.

### 3.2 Effluent Guideline Limits

Historically, for most sources, Ontario has taken an effluent guidelines approach in setting provincial requirements. They are actually two ways in which the Ministry sets effluent guidelines. On an across-the board- basis applying the Industrial Guidelines approach, and on a site-specific basis based on limits calculated from Ontario's Provincial Water Quality Objectives which are receiving water objectives.

The former approach was incorporated into a guidance document entitled "Industrial Guidelines", and was based initially on experience with municipal sewage treatment systems. It was presumed that treated industrial effluents should have the same pollutant concentrations as treated municipal effluent. However, since industrial effluents are quite different from municipal effluents in regard to specific pollutants, pollutant concentration and volume flow, application of the same treatment technology did not result in similar treated effluent concentrations. Industrial wastewater effluents in many cases would require dilution by cooling water, etc. to meet the effluent concentrations. Guidelines allow for these differences where similar treatment technology has been installed. Appendices F-3, F-4 and F-5 presents the guideline values used in the majority of cases in this report to measure acceptable effluent quality.

New plants recycle and reuse water to a much greater extent than do older plants. As a result, even when such plants use a highly effective treatment system, the effluent may exceed concentration limits. In these situations, the Ministry sets loading limits on a loading basis (i.e. kilograms discharged per day) rather than on an effluent concentrations basis.

Ontario also uses "the water quality approach"* in setting effluent limits. For contaminants which are not considered to be persistent toxic contaminants, every river or lake has a definable dilution, dispersion or assimilation (self-purification) capacity.

Water quality considerations take precedence when degradable discharges exceed the assimilative capacity of the receiving waters, but are within the limits set by federal Guidelines or Regulations. In these cases more stringent requirements, based on the limited assimilative capacity, are used to set effluent loading limits. Some plants employ secondary treatment facilities to reduce biodegradable discharges; some of these biodegradable compounds may be toxic but relatively non-persistent. Some contaminants are much more amenable to biodegradation than others

### 3.3 Best Professional Judgement Limit

Where there are no legal limits, MOE District Office staff, may set a guideline based on Best Professional Judgement. This incorporates a review of the manufacturing technology, effluent treatment technology and past performance.

Where innovative technology is being tried, Best Professional Judgement limits and/or conditions may be set out in a Certificate of Approval. These limits would then be legally enforceable.

In summary, chemical-specific limits for the various discharges are set in several forms: pollutant concentrations (milligrams per litre), pollutant loadings (kilograms per day), load per unit of production (kilograms related to production rate), and radioactive loadings (becquerels per litre per day). These limits may be based on any of the above rationales.

### 3.4 Toxicity

Effluent in the Province have been assessed for toxicity using a static lethality test employing rainbow trout. the Ministry's approach to toxicity monitoring is quantitative, ie. we do not determine only whether an effluent is toxic or not toxic but measure how toxic it is.

The test usually measures the concentration of effluent that will kill 50% of the test fish in four days (96 hr LC50). The data presented in the discharge summaries are the results of toxicity tests performed in the MOE Rexdale Laboratories or through contract with Lakehead University in Thunder Bay. A more detailed discussion of toxicity appears in Section 8.0 - Notes on Toxicity, page 47.

## 4.0 Compliance

The term 'compliance' in the context of this report indicates that the effluent data recorded in this report are not exceeding the limits for a given parameter, location and time. There may indeed have been violations of Ministry Acts, Regulations and control documents, and ensuing prosecutions during any period in which an industry may have been shown as being in compliance. Spills, for example, may cause violations which are not reported in in this document but are compiled separately.

Non-compliance is currently expressed in terms of the number of times in the calendar year that any discharger exceeds any effluent limit, whether that limit is a guideline, or a legal requirement as explained above.

Footnote

* Water Management: Goals, Policies, Objectives and Implementation Procedures of the Ministry of the Environment November 1978 Revised May 1984

However, only the exceedances of legally enforceable limits in Control Orders and Certificates of Approval could directly result in prosecutions under exisiting legislation. The guidelines in and of themselves are not directly legally enforceable.

The Ministry will continue to expect industrial dischargers to comply with any numerical limits including guidelines until they are replaced by limits in Ministry control documents or by the technology based requirements of the Municipal-Industrial Strategy for Abatement (MISA) being phased in for major industrial sectors over the next few years. Where Best Professional Judgement limits are in conflict with across-the-board Industrial Guidelines, action will have to be taken to resolve the conflict and document the reasons for the divergence. In the interim, compliance is based on the documented guidelines.

### 4.1 Compliance with Toxicity Limits

In the MISA program, it will be essential to establish clearly what exactly constitutes compliance with respect to toxicity. As a general goal, effluents should not be acutely lethal to fish at the point of discharge. It may not be feasible for all industries to achieve non-lethality to fish at the end of pipe with existing available treatment technology (BATEA).
In the interim, it may be necessary to require compliance limits of less than 100% LC50. The quantitative LC50 monitoring method is essential for the making of this decision.

Industry has been encouraged to practise water conservation, and this has led to several benefits including reduced waste loading to a water body. Acute lethality, however, is a concentration-based effect and is not related to loading. Water use per unit of production also requires control limits in order to reduce loading of persistent contaminants.

### 4.2 Future Ministry Approaches to Compliance

The Ministry realizes that due to the varied derivations of current Ministry limits and guidelines that a formal compliance statement is currently difficult. Ministry staff are therefore examining the legal status of all effluent guidelines currently in use with a view to setting a comprehensive compliance assessment and reporting policy prior to the implementation of MISA limits regulations. In conjunction with the development of Ministry limits, compliance assessment will reflect the achievability of appropriate monthly average, weekly, and daily maximum, effluent limits. The limits and Ministry responses to non-compliance will be statistically based and supported by a policy framework. Objective evaluations of the seriousness of non-compliance will be based on the frequency and magnitude of violations.

The Ministry is studying similar approaches used by the United States Environmental Protection Agency and the Great Lakes states under the Clean Water Act with a view to compatibility with our neighbours' reporting practises. There is general consensus that the policy will express a concept of "Significant Non-Compliance" which will assign greater weight to serious or chronic infractions than to marginal or infrequent ones.

## 4.3 COMPLIANCE WITH CHEMICAL GUIDELINES OR REQUIREMENTS

The calculated actual monthly average and the calculated annual average were compared to the pollutant guidelines or requirements. Table 1, (pages 13 to 20), summarizes such a comparison for the point sources in this report.

For the years 1986 and 1987, the compliance status is as follows:

| Sources Reported 1986 - 154 1987 - 157 | 1986 | | 1987 | |
|---|---|---|---|---|
| | YES | NO | YES | NO |
| Compliance with annual averages | 87 | 67 | 105 | 52 |
| Compliance with monthly averages* | 53 | 101 | 62 | 95 |

* These figures include sources whose Requirements are 'thirty consecutive operating day rolling averages'.

| | 1986 | 1987 |
|---|---|---|
| Companies instituting controls | 21 | 41 |
| Control order requiring further reduction beyond current levels. | 4 | 6 |
| Number of companies with limits set by Control Order or Certificate of Approval. | 31 | 37 |

For companies discharging into the Great Lakes Basin, the compliance status is as follows:

| Sources Reported 1986 - 134 1987 - 132 | 1986 | | 1987 | |
|---|---|---|---|---|
| | YES | NO | YES | NO |
| Compliance with annual averages | 79 | 55 | 93 | 39 |
| Compliance with monthly averages* | 39 | 95 | 56 | 76 |

* These figures include sources whose Requirements are 'thirty consecutive operating day rolling averages'.

In Table 1 parameters which have been exceeded by a source are identified. For companies not in compliance, refer to the company source sheets in Appendix A for comments.

The 1987 results showed that, overall industrial dischargers exceeded individual monthly limits 867 times out of 7,311 monitored, or 11.9% of the time. This compares with 1986 where dischargers exceeded limits 984 out of 7,047 monitored or 14% of the time. In other words, overall compliance is 88.1% in 1987 compared to 86% in 1986. Individual monthly compliance for each company is shown on the data sheets in Appendix A.

*The word "compliance" as used in this report does not indicate that no contraventions of the legislation and regulations have occurred, but rather that the data recorded in the report do not, in themselves, demonstrate that there have been contraventions.*

## Table 1 - 1987 COMPLIANCE SUMMARY

| COMPANY NAME | LOCATION | PAGE NUMBER | IN COMPLIANCE | | COMPANY INSTITUTING CONTROLS | SEE COMPANY SHEET | CONTROL ORDER REQUIRES FURTHER REDUCTIONS | LIMITS SET BY CONTROL ORDER OR C. OF A. * | PARAMETERS IN EXCEEDANCE OF MINISTRY GUIDELINES OR REQUIREMENTS ( ) DENOTES NUMBER OF MONTHS EXCEEDED (see code key at end of table) |
|---|---|---|---|---|---|---|---|---|---|
| | | | MONTHLY | ANNUAL | | | | | |
| Abitibi-Price Inc | Iroquois Falls | A-1 | X | X | | | | X | |
| Abitibi-Price Inc., Fort William Division | Thunder Bay | A-2 | | X | | | | X | BOD5(2) |
| Abitibi-Price Inc., Fine Papers Division | Thunder Bay | A-3 | X | X | X | | | X | |
| Agnico Eagle Mines Ltd., Penn Mill | Cobalt | A-4 | | | X | | | | ASUT (4), |
| Agnico Eagle Mines Ltd., Refinery | Cobalt | A-5 | | X | | | | | ASUT (2), |
| American Standard, Div. of Wabco | Cambridge | A-6 | | X | | | | | FEUT (3), RSP (3) |
| Atlas Steel Company | Welland | A-7 | | | X | X | | | RSP (3), PH (1), CDUT (8) |
| Bakelite Thermosets Ltd. | Belleville | A-8 | | | | | | | PHENOLS (6) |
| Beaver Wood Fibre Comapny | Thorold | A-9 | | | | | | | RSP (4), BOD5 (2) |
| B. F. Goodrich | Niagara Falls | A-10 | | X | X | | | | RSP (2), BOD5 (1) |
| Blackstone Industrial Products Ltd. | Stratford | A-11 | | X | | | | | PBUT (1), RSP (2), ZNUT (2) |
| Boise-Cascade Canada Ltd. | Fort Frances | A-12 | X | X | | | | X | |
| Boise-Cascade Canada Ltd. | Kenora | A-13 | X | X | | | | X | |
| Borg-Warner Chemicals | Cobourg | A-14 | | | X | | | X | PPUT (4), RSP (7) |
| Campbell Soup Co. Ltd. | St. Marys | A-15 | | | X | X | | X | BOD5 (9), FLOW (1), RSP (11), PPO4 (3) |
| Canadian Canners Ltd. | St. Davids | A-16 | X | X | | | | | |
| Canadian Oxy-Durez | Fort Erie | A-17 | | | X | | | | PHNOL (9) |
| CASCO Company | Cardinal | A-18 | X | X | X | | X | X | |
| Celanese Canada Ltd. | Ernestown Twp. | A-19 | | X | | | | | BOD5 (1) |
| Champlain Industries Ltd. | Tara | A-20 | X | X | | | | | |
| Chesapeake & Ohio Railway Co. | St. Thomas | A-21 | X | X | | X | | | |
| CIL Ltd. | Cornwall | A-22 | X | X | | X | | | |

## Table 1 - 1987 COMPLIANCE SUMMARY

| COMPANY NAME | LOCATION | PAGE NUMBER | IN COMPLIANCE | | COMPANY INSTITUTING CONTROLS | SEE COMPANY SHEET | CONTROL ORDER REQUIRES FURTHER REDUCTIONS | LIMITS SET BY CONTROL ORDER OR C OF A * | PARAMETERS IN EXCEEDANCE OF MINISTRY GUIDELINES OR REQUIREMENTS ( ) DENOTES NUMBER OF MONTHS EXCEEDED (see code key at end of table) |
|---|---|---|---|---|---|---|---|---|---|
| | | | MONTHLY | ANNUAL | | | | | |
| CIL Ltd | Courtright | A-23 | X | X | | | | X | |
| Corby Distilleries Ltd | Corbyville | A-24 | | X | | | | | COD (1) |
| Courtaulds-BCL Ltd | Cornwall | A-25 | | | | X | | X | BOD5 (12) |
| Cyanamid Canada Inc | Niagara Falls | A-26 | X | X | | | | | |
| Cyanamid Canada Inc , Welland Plant | Niagara Falls | A-27 | X | X | X | X | | X | |
| Denison Mines Ltd , | Elliot Lake | A-28 | | X | | | | | RSP (1) |
| Denison Mines Ltd , Stanrock | Elliot Lake | A-29 | | X | | | | | ph (1) |
| Denison Mines Ltd , Williams Lake | Elliot Lake | A-30 | X | X | X | | | | |
| Detour Lake Mine | Timmins | A-31 | | | X | | | X | CUUT (6), CCNAUR (1) |
| Dickenson-Sullivan Venture (A W White Mine) | Balmertown | A-32 | | X | | X | | X | CUMULATIVE METALS (6), ASUT (1) |
| Dofasco Inc | Hamilton | A-33 | X | X | X | | | | |
| DOFASCO LTD. - Adams Mine | Kirkland Lake | A-34 | | | X | | | | FEUT (2), RSP (1) |
| Domtar Chemicals Ltd | Goderich | A-35 | | | | | | | RSP (9) |
| Domtar Chemical Group | Orillia | A-36 | X | X | | | | | |
| Domtar Construction Materials Ltd | Thorold | A-37 | | | X | X | | | BOD5 (3) |
| Domtar Fine Papers | Cornwall | A-38 | X | X | | | X | X | |
| Domtar Fine Papers | St Catharines | A-39 | | | | | | | BOD5 (12) |
| Domtar Packaging Ltd | Red Rock | A-40 | | X | | | | X | BOD5(1) |
| Domtar Packaging | Trenton | A-41 | | | | | | | BOD5 (9), TSS (10) |
| Domtar Wood Preserving | Trenton | A-42 | | | | | | | PHENOL (7), SOLEXT (2) |
| DOW Chemical Canada Ltd | Sarnia | A-43 | X | X | | | | | |
| Dupont Canada Inc | Corunna | A-44 | | X | X | | | | PHNOL (2) |

## Table 1 - 1987 COMPLIANCE SUMMARY

| COMPANY NAME | LOCATION | PAGE NUMBER | IN COMPLIANCE | | COMPANY INSTITUTING CONTROLS | SEE COMPANY SHEET | CONTROL ORDER REQUIRES FURTHER REDUCTIONS | LIMITS SET BY CONTROL ORDER OR C. OF A. * | PARAMETERS IN EXCEEDANCE OF MINISTRY GUIDELINES OR REQUIREMENTS ( ) DENOTES NUMBER OF MONTHS EXCEEDED (see code key at end of table) |
|---|---|---|---|---|---|---|---|---|---|
| | | | MONTHLY | ANNUAL | | | | | |
| Dupont Canada Inc | Kingston | A-45 | X | X | | | | | |
| Dupont Canada Inc | Maitland | A-46 | X | X | | | | | |
| E B Forest Products Ltd | Espanola | A-47 | X | X | | | | X | |
| E B Eddy Forest Products Ltd | Ottawa | A-48 | | | | | | X | BOD (9) |
| Eldorado Resources Ltd | Blind River | A-49 | X | X | | | | | |
| Eldorado Nuclear Ltd | Port Granby | A-50 | | X | | | | | ASUT (3) |
| Eldorado Nuclear Ltd | Port Hope | A-51 | X | X | | | | | |
| Eldorado Nuclear Ltd | Welcome | A-52 | X | X | | | | | |
| ESSO Chemicals Canada Ltd. | Sarnia | A-53 | X | X | | | | | |
| ESSO Petroleum Canada Ltd | Sarnia | A-54 | X | X | | | | | |
| Ethyl Canada Inc | Corunna | A-55 | X | X | | | | | |
| Exolon | Thorold | A-56 | X | X | | | | | |
| Explosive Technologies International Inc | North Bay | A-57 | X | X | | | | | |
| Falconbridge Ltd. | Falconbridge | A-58 | | X | | | | | FEUT (1), NIUT (3) |
| Falconbridge Ltd.,Kidd Creek Mine (Met. Site) | Timmins | A-59 | | | | X | | | RSP (3), pH (2) |
| Falconbridge Ltd., Kidd Creek Mines (Mine Site) | Timmins | A-60 | | | | X | | | RSP (7), ZNUT (1), pH (10) |
| Falconbridge Ltd., Lockerby Mine | Onaping | A-61 | | X | | | | | ph (1) |
| Falconbridge Ltd., Moose Lake WWTP | Onaping Falls | A-62 | | X | | | | | FEUT (2) |
| Falconbridge Ltd., Onaping Mine | Onaping Falls | A-63 | | X | | | | | NIUT(1) |
| Fibergias | Sarnia | A-64 | X | X | | | | | |
| Fleet Manufacturing Company Ltd | Fort Erie | A-65 | | | X | X | | | CDUT (2), RSP (2), BOD5 (1) |
| Ford Motor Company Ltd | Niagara Falls | A-66 | X | X | | | | | |

## Table 1 - 1987 COMPLIANCE SUMMARY

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|---|---|---|---|---|---|---|---|---|---|
| | | | MONTHLY | ANNUAL | | | | | |
| Ford Motor Comapany Ltd | Oakville | A-67 | | | X | X | | | RSP (12), BOD5 (9), PHNOL (7), PPUT (3) |
| Ford Motor Company Ltd | St. Thomas | A-68 | | | X | | | | PPO4UT (4), ZINC (10) |
| Ford Motor Company Ltd | Windsor | A-69 | | | X | | | | PHNOL (12), RSP (12) |
| Fraser Inc | Thorold | A-70 | | | | | | | BOD (11) |
| Gay Lee Foods Co-op Ltd | Teeswater | A-71 | X | X | | | | | |
| General Chemical Canada Ltd | Amherstberg | A-72 | | X | | | | | RSP (3) |
| General Motors Company Ltd | St. Catharines | A-73 | | | | | | | PHNOL (4), RSP (2) |
| Giant Yellow Knife Mines Ltd. (Pamour Mine) | Timmins | A-74 | | | | X | | | FEUT (8) |
| Giant Yellow Knife Mines Ltd., (Schumacher Mine) | Timmins | A-75 | | | X | X | | | CNNAUR (4), CU (10) |
| Golden Sheild Resources - Kerr Division | Virginiatown | A-76 | | | X | X | | | ASUT (9), CN (8), CU (3), NIUT (11), FEUT (4), RSP (2) |
| Great Lakes Forest Products Ltd | Dryden | A-77 | X | X | | | | | |
| Great Lakes Forest Products Ltd | Thunder bay | A-78 | X | X | | | | X | |
| G. W. Martin Forest Products Ltd | Alban | A-79 | | | | X | | | |
| H. J. Heinz Company of Canada Ltd | Leamington | A-80 | | | X | X | | | BOD5 (5), PPUT (1), RSP (4) |
| Inco Ltd., Copper Cliff Nickel Refinery | Copper Cliff | A-81 | | X | | | | | NIUT (1) |
| Inco Ltd., Copper Cliff Creek Wastewater | Copper Cliff | A-82 | | X | | | | | FEUT (1) |
| Inco Ltd., Crean Hill Mine | Copper Cliff | A-83 | X | X | | | | | |
| Inco Ltd., Frood Stobie Emergency Tailings Area | Copper Cliff | A-84 | | | | X | | | CUUT (6), FEUT (6), NH3-N (2), RSP, (3), ph (6) NIUT(6) |
| Inco Ltd., Garson Mine | Copper Cliff | A-85 | | X | | X | | | NIUT (1) |
| Inco Ltd., Levack Tailings Area | Copper Cliff | A-86 | | X | | | | | FEUT (2), RSP (2), ph (1), NIUT (1) |
| Inco Ltd., Nolin Creek Wastewater | Copper Cliff | A-87 | | X | | | | | FEUT (2), ph (1) |

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|---|---|---|---|---|---|---|---|---|---|
| | | | MONTHLY | ANNUAL | | | | | |
| Inco Metals Ltd | Pt Colborne | A-88 | | | | | | | PH (3) |
| International Minerals and Chemicals | Dunnville | A-89 | | | | | | | PH (6) |
| James River Marathon Ltd | Marathon | A-90 | X | X | | | X | X | |
| J. M. Schneider Inc | Ayr | A-91 | | X | | | | X | PPUT (1) |
| Kimberly-Clark of Canada Ltd | Huntsville | A-92 | X | X | | | | | |
| Kimberly Clark of Canada Ltd | St. Catharines | A-93 | | | X | | | | BOD5 (9) |
| Kimberly-Clark of Canada Ltd | Terrace Bay | A-94 | | X | | | X | X | RSP (2) |
| Kraft Foods Ltd | Ingleside | A-95 | | | X | X | | | BOD5 (11), PPUT (12), RSP (12) |
| Lac Minerals (Macassa Div.) | Kirkland Lake | A-96 | | | X | X | | | RSP (3), CUUT (3), CCNAUR (5) |
| MacMillan Bloedel Ltd | Sturgeon Falls | A-97 | X | X | X | | | X | |
| Malette Kraft Pulp and Power | Smooth Rock Falls | A-98 | | | X | X | | X | RSP (DAILY 37), 30 DAY (187), BOD5 (DAILY 17), 30 DAY (59) |
| Mattabi Mines Ltd | Kenora District | A-99 | | | | | | | RSP (1), ZNUT (12), pH (3) |
| McBean Mine Ltd | Dobie | A-100 | X | X | | X | | | |
| Mitsubishi Electronics Canada Inc | Midland | A-101 | | X | | | | X | pH (1) |
| Nestle Enterprises Ltd | Chesterville | A-102 | | | X | X | | | FLOW (2), BOD5 (5), PPUT (8), RSP (1) |
| Nitrochem Inc | Maitland | A-103 | X | X | | | | | |
| Noranda - Hemlo Inc | Marathon | A-104 | X | X | | | | | |
| Noranda Inc., Lyon Lake Division | Ignace | A-105 | | X | X | | | | RSP (1), ZNUT (4) |
| Noranda Mines Ltd GECO DIV | Manitouwadge | A-106 | | | X | X | | | RSP (3), NNH3FR (12) |
| Northern Wood Preservers Ltd | Thunder Bay | A-107 | | X | | | | X | RSP (1) |
| Norton Company | Niagara Falls | A-108 | X | X | | | | | |
| NOVACOR Ltd | Sarnia | A-109 | | | X | | | | RSP (10) |

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|---|---|---|---|---|---|---|---|---|---|
| | | | MONTHLY | ANNUAL | | | | | |
| Ogilvie Mills Ltd | Thunder Bay | A-110 | | X | X | X | | X | BOD5 (4) |
| Omstead Foods Ltd | Wheatley | A-111 | | X | X | | | | BOD5 (3), NH3-N (1), PPUT (3), RSP (4) |
| Ontario Hydro, Lambton TGS | Courtright | A-112 | | X | | | | | FWTEMP (2) |
| Ontario Hydro, (Stations A and B) | Pickering | A-113 | X | X | | | | | |
| Ontario Hydro TGS (Ash lagoon) | Nanticoke | A-114 | | X | | | | | RSP (1) |
| Ontario Hydro TGS (Cooling Water) | Nanticoke | A-115 | X | X | | | | | |
| Ontario Hydro, Bruce NPGS - STP | Tiverton | A-116 | X | X | | | | | |
| Ontario Hydro, Bruce NPGS - A + B | Tiverton | A-117 | X | X | | | | | |
| Ontario Hydro, Bruce NPGS - Heavy Water | Tiverton | A-118 | X | X | | | | | |
| Ontario Hydro | Thunder Bay | A-119 | X | X | | | | | |
| Ontario Hydro (Lakeview) | Toronto | A-120 | X | X | | | | | |
| Petro-Canada Inc (Clarkson) | Mississauga | A-121 | | | X | X | | | RSP (3), PHNOL (6), |
| Petro-Canada Inc (Trafalgar) | Oakville | A-122 | | | X | X | | | NNH3FR (1), RSP (11), PHNOL (9) |
| Petrosar Limited | Corunna | A-123 | X | X | | | | | |
| Placer Dome Inc. (Campbell Red Lake) | Balmertown | A-124 | | X | | X | | | CUMULATIVE METALS (6), ASUT (1) |
| Placer-Dome Mines | South Porcupine | A-125 | | X | X | | | | CUUT (2) |
| Polysar Ltd | Sarnia | A-126 | X | X | | | | | |
| Provincial Papers Ltd (Abitibi-Price Ltd ) | Thunder Bay | A-127 | X | X | | | | X | |
| Quebec and Ontario Paper Company Ltd | Thorold | A-128 | | X | | | | X | RSP (1) |
| Reichhold Chemicals Ltd | Thunder Bay | A-129 | | | | X | | X | RSP (12), PHENOL (*) |
| Rexwood Products Ltd | New Liskeard | A-130 | | X | X | | | | BOD5 (4), RSP (7) |
| Rio Algom Ltd , Panel Mill | Elliot Lake | A-131 | X | X | | | | | |

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|---|---|---|---|---|---|---|---|---|---|
| | | | MONTHLY | ANNUAL | | | | | |
| Rio Algom Ltd , Quirke Mill | Elliot Lake | A-132 | | | | | | | FEUT (11), RSP (1) |
| Rio Algom Ltd , Stanleigh Mill | Elliot Lake | A-133 | X | X | | | | | |
| Rothsay The Rendering Div Maple Leaf Mills | Rothsay | A-134 | | | | | | | SSIDA (4),pH (1), RSP (1) |
| Shell Canada Products Limited | Corunna | A-135 | X | X | | | | | |
| Sherman Mine | Temagami | A-136 | X | X | | | | | |
| Sohio | Niagara Falls | A-137 | | | | | | | BOD5 (4), RSP (1) |
| Spruce Falls Power and Paper Ltd | Kapuskasing | A-138 | | X | | X | | X | BOD5 (1) |
| Stanley Hardware Div Of Stanley | New Hamburg | A-139 | | | X | X | X | X | NIUT (11), RSP (11), ZNUT (12), CUUT (5) CCNAUR (5) |
| St Marys Paper Inc | Sault Ste. Marie | A-140 | X | X | | | | X | |
| Steetley Talc Ltd | Timmins | A-141 | X | X | | | | | |
| Stelco Inc | Hamilton | A-142 | | | X | X | | | CCNAUR (3), PHNOL (4), RSP (1) |
| Stelco Inc , Lake Erie Works | Nanticoke | A-143 | | X | | | | X | RSP (1), |
| Stelco Page Hersey Works | Welland | A-144 | X | X | | | | | |
| Stelco Welland Tube Works | Welland | A-145 | | X | | | | | RSP (1), SOLEXT (1) |
| Strathcona Paper Company Ltd | Camden East Twp. | A-146 | X | X | | | | X | |
| Suncor Inc , Sunoco Division | Sarnia | A-147 | X | X | | | | | |
| Teck-Corona Inc | Marathon | A-148 | X | X | | | | | |
| Tend-R-Fresh Div of Maple Leaf Mills | Petersburg | A-149 | | | X | | | X | BOD5 (3), RSP (5), NNHTER (6), PPUT (3), SOLEXT (2) |
| Texaco Canada Inc | Port Credit | A-150 | | X | | | | | RSP (2) |
| Texaco Canada Inc | Nanticoke | A-151 | X | X | | | | | |
| The Algoma Steel Corporation Ltd | Sault Ste Marie | A-152 | | | | | X | X | FEFT (1), RSP (12), SOLEXT (5) |
| The Algoma Steel Corporation Ltd (Ore Div ) | Wawa | A-153 | | X | | | | | RSP (4) |

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|---|---|---|---|---|---|---|---|---|---|
| | | | MONTHLY | ANNUAL | | | | | |
| The Canadian Salt Company Ltd | Windsor | A-154 | | X | | | | | RSP (1) |
| Trent Valley Paperboard Mills | Glen Miller | A-155 | | | X | | | X | RSP (12) |
| Washington Mills Ltd | Niagara Falls | A-156 | | X | | | | | RSP (3) |
| Wickes Manufacturing Co Ltd | Windsor | A-157 | | | X | | | | NICKEL (6), RSP (12) |
| * Certificate of Approval with Specified Limits | | | | | | | | | |

CODE KEY

| | |
|---|---|
| ASUT | Arsenic (unfiltered total) |
| BOD5 | Biochemical Oxygen Demand (5 Day) |
| CCNAUR | Cyanide (available, unfiltered reactive) |
| CDUT | Cadmium (unfiltered total) |
| COD | Chemical Oxygen Demand |
| CUUT | Copper (unfiltered total) |
| FEFT | Iron (filtered total) |
| FEUT | Iron (unfiltered total) |
| FWTEMP | temperature (maximum) |
| NIUT | Nickel (unfiltered total) |
| NNH3FR | Ammonia (filtered reactive) |
| NNHTFR | Ammonium (total filtered reactive) |
| PBUT | Lead (unfiltered total) |
| PHNOL | Phenols |
| PPO4UT | Phosphates (unfiltered total) |
| PPUT | Phosphorus (unfiltered total) |
| RA226F | Radium 226 (filtered total) |
| RSP | Residue Particulate (total suspended solids) |
| SSIDA | Hydrogen sulphide (available) |
| SOLEXT | Solvent extractables |
| ZNUT | Zinc (unfiltered total) |

## 5.0 MISA Monitoring and Regulatory Progress

The ultimate goal of the MISA Program, announced by the Environment Minister Jim Bradley in June 1986, is the virtual elimination of toxic contaminants from all industrial and municipal effluents. In general, this will be done through two types of Regulations. The first type, Monitoring, will identify toxic contaminant concentrations and loadings. The second regulation, based on Best Available Control Technology Economically Achievable (BATEA), will set limits. Under BATEA, dischargers will be required to establish a minimum level of treatment regardless of location.

Controls beyond BATEA limits may be required to protect sensitive water bodies. These more stringent limits will be based on water quality assessments.

Environment Canada, industries, interest groups and the public are consulted in the development of these Regulations. A Joint Technical Committee (JTC), composed of industry and government (both Federal and Provincial) officials, develop monitoring programs to identify and characterize sources of contaminants discharging to surface waters in Ontario from the specific sector, either industrial or municipal, with which the JTC is associated. The JTC also reviews and considers the practical and effective requirements of the Regulations developed by Ministry staff. Policy decisions are the sole responsibility of the Ministry. Extensive public participation is part of the MISA Program. All Regulations in draft form are released for public comment.

The MISA Advisory Committee (MAC), a group of independent technical and environmental people, acts as an effective public advisory body to Environment Minister Jim Bradley. The MAC, created in November 1986, reviews all draft Regulations and provides advice and recommendations to the Minister. MAC representatives are observers at JTC meetings to maintain close liaison on developments in the MISA Program.

The General Effluent Monitoring Regulation was promulgated on June 7, 1988. The General Regulation is a legal description of the requirements for sampling devices, analyses, of flow measurement, the quality assurance and quality control, aquatic toxicity testing protocols (acute and chronic) and, the data handling and reporting.

The first sector regulation, Effluent Monitoring Regulation for the Ontario Petroleum Refineries, was promulgated June 7, 1988. This sector regulation requires both the conventional and trace contaminants to be identified and quantified as well as frequency of sampling of various discharges. A legal reporting requirement is part of the Regulation.

For MISA purposes, Ontario's industries will be placed in one of the following categories:

- **PETROLEUM REFINING SECTOR (0100)**
  Seven petroleum refineries that manufacture a family of refined petroleum products and blend lubricating oils and grease.
- **ORGANIC CHEMICAL MANUFACTURING (0200)**
  Nineteen companies that manufacture organic chemicals, plastics and synthetic fibres.

- **PULP AND PAPER (0300)**
  Twenty-eight mills that make pulp, paper, paperboard, corrugating medium and boxboard from logs and used paper (newspaper, ledger paper, containers, etc).
- **METAL MINING AND REFINING (0400)**
  Industrial activities that consist of mining and concentrating ores, 53 major active mines) and smelting and refining non-ferrous metals. The metals are nickel, copper, lead, zinc, gold, silver, salt, uranium.
- **IRON AND STEEL (0500)**
  Factories that make iron and steel from ore, scrap and coal. Primary steel is produced at four locations while electric arc furnaces are used at three locations.
- **ELECTRIC POWER GENERATION (0600)**
  Seventy-six establishments that generate electrical power using fuel oil, coal, natural gas and uranium. Six out of sixty-eight hydroelectric generating stations being considered for inclusion in this sector are included for assessment purposes.
- **INORGANIC CHEMICALS (0700)**
  Twenty-one factories that make inorganic chemicals (sulphuric acid, caustic hydrochloric acid, fertilizers, abrasives, carbon black, etc.)
- **METAL CASTING (0800)**
  Approximately twenty-five factories that make castings from iron, steel and other metals.
- **INDUSTRIAL MINERALS (0900)**
  Up to 94 factories that are primarily engaged in mining and processing non-metallic minerals and structural materials including asbestos, gypsum, graphite, mica, limestone, talc, vermiculite, nepheline syenite, calcite, quartzite, dolomite, sand and gravel.

Regulations are under development or planned for each sector. The monitoring regulation will come into force following a public review period and revisions, if necessary. Effluent Limits Regulations for each sector will be developed taking account of monitoring data collected during the monitoring regulation. These are expected to be in place in three years.

Several other major Ministry projects supporting MISA are also well under way. A list of priority pollutants for Ontario was developed, and is entitled the Ontario Effluent Monitoring Priority Pollutants List or EMPPL. EMPPL includes a listing mechanism which recognizes and assigns significance to the environmental effects of a specific compound or pollutant. A study has been done on the availability of private laboratory services in North America. Also, a major study is in progress to assess various socio-economic impacts relating to the implementation of the MISA program for each industrial sector (Economic and Financial Profiles).

The Loans for Environmental Defence (LEND) Program has $150 million available to companies that need assistance to clean up pollution problems. Up to 40% of the cost of clean up is available to companies demonstrating financial need. The terms for these repayable loans will be based on individual circumstances.

Pilot site studies are also in progress at six sites across the province, covering both Great Lakes and inland waterways situations. These will provide data to enable standard procedures and techniques to be developed for assessing the impact of discharges on receiving water quality.

To support the implementation of MISA, work is underway to revise the water management policies in the Ministry of the Environment's Blue Book - the policy manual for water quality management in Ontario.

## 5.1 Petroleum Refining Sector Status

In the 1986 Industrial Direct Discharges Report in Ontario, there was an extensive description of effluent volumes, effluent composition (once through cooling water, stormwater, process wastewaters,) schematics of effluent treatment systems, discharge trends for conventional pollutants, an example of trace contaminants concentration, and a comparison of various limits, (including Environment Canada). In this report only the updated comparison of Canadian limits and discharge trends of conventional pollutants has been included.

The effluent from a petroleum refinery consists mainly of process wastewater (process effluent) and non-contact cooling water (once through cooling water) which can be potentially contaminated if leakage occurs.

All the petroleum refineries in Ontario have effluent treatment systems that consist of two primary stages (oil/water separators), some form of intermediate equalization, secondary treatment (biological treatment) and biomass removal. The treatment systems are comparable to those required by U.S. E.P.A.

The Ontario Ministry of the Environment enforces Federal Regulations and applies both Federal and Provincial guidelines for the petroleum industry. According to these guidelines, petroleum refineries report five parameters which are considered to be representative of their effluents: phenolics, ammonia-nitrogen, total suspended solids, oil and grease and acute toxicity to fish - 24hr static test. Ontario petroleum refineries usually meet all these limits - Ontario maximum concentrations, as well as Environment Canada production rate allowables. In Canada, the largest data base pertaining to characterization of refinery wastewaters has been produced in studies jointly funded by PACE and Environment Canada. Four field/laboratory studies and three reviews were completed between 1980 and 1984. All sampling was done by consultants; no refinery personnel were involved. Most of the analytical work was done for the determination of contaminants on the US EPA Priority Pollutants list.

The Effluent Monitoring Regulation (O. Reg. 359/88) for the Petroleum Refining Sector (Petroleum Regulation) under the MISA program was promulgated in June 1988. All the refineries will be required to monitor their point source discharges at regular intervals for up to 147 contaminants. This monitoring will be carried out for a twelve month period. The data generated through this program, along with other pertinent information, will be used in the development of effluent limits based on best available technology economically achievable (BAT(EA)).

In reviewing the data and status of petroleum refineries readers may wish to refer to the subsequent section, Pollutants and their Significance (Appendix E).

**TABLE 2**
**Petroleum Refining Sector Comparison of Allowables and Actuals; Ontario, Environment Canada, (unless indicated otherwise, units are kg/day)**

July 1987

| REFINERY/POLLUTANT | PETRO-CANADA (Clarkson) | ESSO | PETROSAR | PETRO-CANADA (Trafalgar) | SHELL | SUNCOR | TEXACO |
|---|---|---|---|---|---|---|---|
| TOTAL SUSPENDEND SOLIDS (biological solids, insoluble oil, clay) | | | | | | | |
| Actual | 117 | 0 | 58 | 159 | 713 | 171 | 5.5 |
| Ontario | 151 | 3086 | 104 | 78.6 | 4213 | 1711 | 68.1 |
| Env. Canada | 310.3 | 783.8 | 173.6 | 301.7 | 461.5 | 326.3 | 326.6 |
| PHENOLICS | | | | | | | |
| Actual | 0.9 | 0.18 | 0.03 | 0.14 | 0.18 | 0.08 | 0.01 |
| Ontario | 0.2 | 4.11 | 0.1 | 0.1 | 5.6 | 2.3 | |
| Env. Canada | 12.9 | 32.6 | 7.2 | 12.6 | 19.2 | 13.6 | 13.6 |
| AMMONIA-NITROGEN | | | | | | | |
| Actual | 11.6 | 6.7 | 7 | 21.8 | 0 | 30 | 3.2 |
| Ontario | 100.8 | 2057 | 69.1 | 52.4 | 2809 | 1141 | 45.4 |
| Env. Canada | 121.8 | 272 | 86.8 | 108.7 | 160.6 | 119.6 | 163.3 |
| OIL AND GREASE | | | | | | | |
| Actual | 274 | 9.4 | 0 | 13.5 | 104 | 38 | 3.9 |
| Ontario | 228 | 2057 | 69.1 | 52.4 | 2809 | 1041 | 45.4 |
| Env. Canada | 129.3 | 326.6 | 72.3 | 125.7 | 192.3 | 135.9 | 136.1 |

**TABLE 2 ... continued**

| REFINERY/POLLUTANT | PETRO-CANADA (Clarkson) | ESSO | PETROSAR | PETRO-CANADA (Oakville) | SHELL | SUNCOR | TEXACO |
|---|---|---|---|---|---|---|---|
| SULPHIDES | | | | | | | |
| Actual | 0.33 | 0.303 | n/a | 3.14 | 2.55 | 0.18 | 0.048 |
| Ontario (none) | - | - | - | - | - | - | - |
| Env. Canada | 4.3 | 10.9 | 2.4 | 4.2 | 6.4 | 4.5 | 4.5 |
| Monthly Federal/Ontario Fish Test for 1987 | 1 2 passes | 1 2 passes | 1 2 passes | 1 2 passes | 1 2 passes | 1 2 passes | 1 2 passes |
| Reference Crude Rate ($m^3$/day) | 9,790 | 19,080 | 8,440 | 7,950 | 11,230 | 8,951 | 15,900 |

Note:

- Environment Canada has 3 different allowable limits for each pollutant: the most stringent, the monthly average limit, has been calculated by each refinery.

N/A - not available

- Since MISA limits will be in kilograms /day Ontario's concentration limits for TSS (15 ppm), phenolics (.02 ppm), ammonia-nitrogen (10 ppm), oil and grease (10 ppm) and sulphides (none) have been converted to loadings.

## TABLE 3
## PETROLEUM REFINERIES STATUS
## (all loadings in kilograms per day)

| | AMMONIA-NITROGEN | | | | PHENOLICS | | | |
|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1984 | 1985 | 1986 | 1987 |
| ESSO CANADA @ SARNIA | 56 | 24.7 | 14.1 | 15.41 | .6 | .7 | .21 | 0.48 |
| PETRO-CANADA @ CLARKSON | 50.5 | 21.5 | 41.2 | 19.84 | 1.41 | 1.072 | .34 | 0.28 |
| PETRO-CANADA @ OAKVILLE | 48 | 50.1 | 49.8 | 24.43 | .17 | .18 | .298 | 0.13 |
| PETROSAR @ CORUNNA | 19.5 | 14.5 | 15.26 | 13.92 | .43 | .1 | .03 | 0.03 |
| SHELL @ CORUNNA | 4.8 | 6.45 | 2.73 | 7.56 | .42 | .35 | .18 | 0.11 |
| SUNCOR @ SARNIA | 31.1 | 23.3 | 33.25 | 42.6 | 1.08 | .67 | .35 | 0.24 |
| TEXACO @ NANTICOKE | 3.26 | 1.28 | 1.51 | 0.53 | .04 | .02 | .008 | 0.01 |
| TOTALS | 225.0 | 141.8 | 157.85 | 124.29 | 4.16 | 3.1 | 1.416 | 1.28 |

| | SUSPENDED SOLIDS | | | | OIL & GREASE | | | |
|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1984 | 1985 | 1986 | 1987 |
| ESSO CANADA @ SARNIA | 290 | 418 | 395.1 | 32.7 | 176 | 113 | 80.15 | 7.9 |
| PETRO-CANADA @ CLARKSON | 341 | 158 | 148.8 | 135.5 | 311 | 91.1 | 89.5 | 71.5 |
| PETRO-CANADA @ OAKVILLE | 54.6 | 71.8 | 93.5 | 119 | 6.92 | 5.7 | 9.13 | 11.3 |
| PETROSAR @ CORUNNA | 70.2 | 43.7 | 29.9 | 21.4 | 10.4 | 11.1 | 4.17 | 2.6 |
| SHELL @ CORUNNA | (0)* | 767 | 371.1 | 562.7 | 88 | 117.0 | 118.7 | 137 |
| SUNCOR @ SARNIA | 255 | 416 | 362.8 | 205.6 | 94.3 | 44.1 | 72.83 | 69.2 |
| TEXACO @ NANTICOKE | 9.4 | 4.5 | 1.59 | 2.4 | 6.7 | 32.1 | 2.68 | 6 |
| TOTALS | 1020 | 1879 | 1402.8 | 1079.3 | 693 | 384.1 | 377.2 | 305.5 |

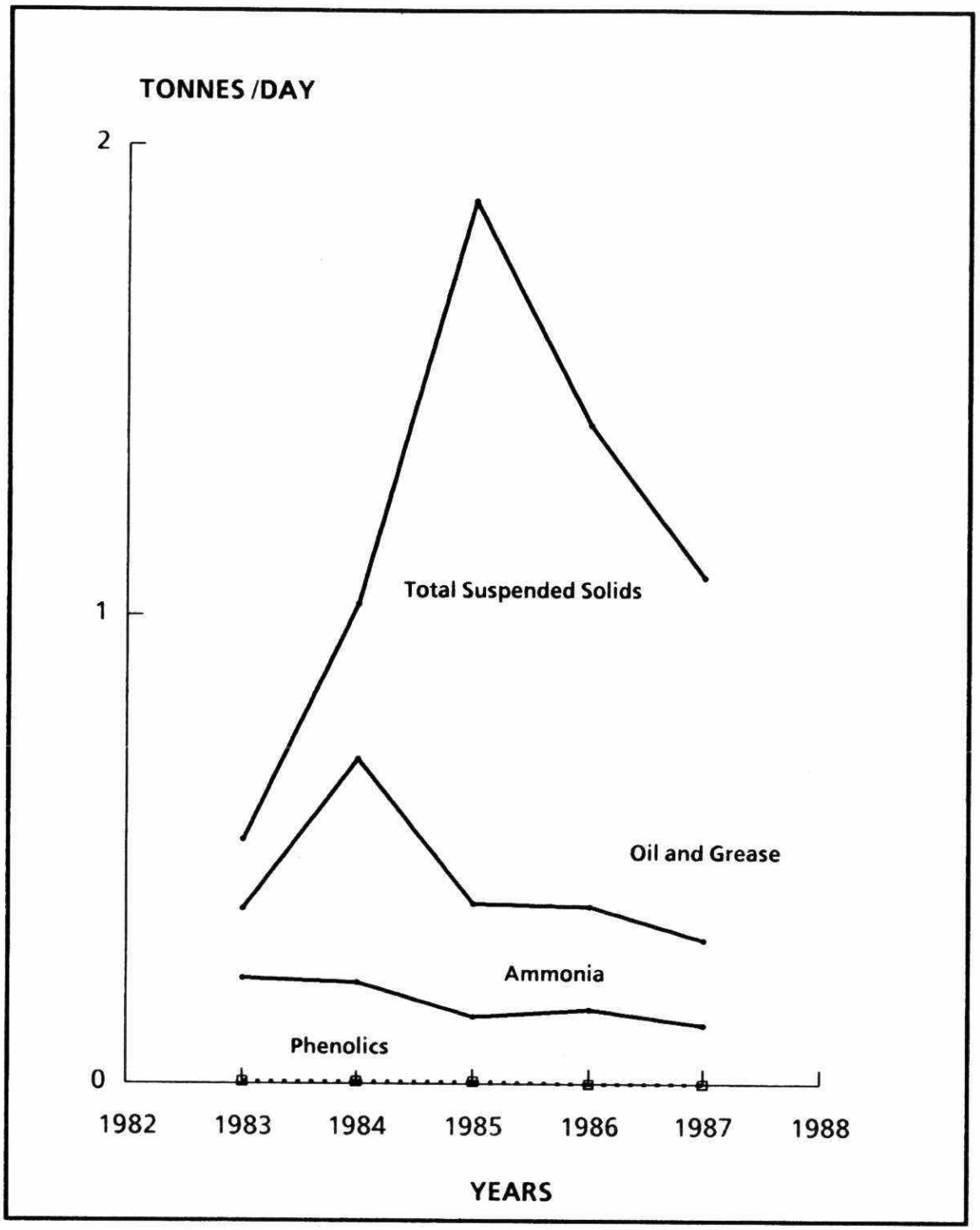
* Intake exceeded discharge

FIGURE 1

# REFINERIES SECTOR STATUS

## FOUR MAJOR PARAMETERS

## ONTARIO



### 5.1.1 Total Suspended Solids

Although the refineries were below requirements, three reported an increase in suspended solids discharges since 1986, while four reported a decrease. Total discharges declined by 323.5 kilograms/day (from 1402.8 kilograms per day to 1079.3 kilograms per day) from 1986 to 1987.

### 5.1.2 Phenolics

Five of the seven refineries reported a decrease in discharges of phenolics since 1986 and two reported an increase. Total discharges of phenolics decreased from 1.416 kilograms per day in 1986 to 1.28 kilograms per day in 1986 (a decrease of 0.13 kilograms/day).

### 5.1.3 Ammonia-nitrogen

Four plants reported a decrease in ammonia-nitrogen discharges and three reported an increase. The total discharges in 1986 (157.85 kilograms) were 35.56 kilograms per day higher than the total for 1987 (124.29 kilograms).

### 5.1.4 Solvent Extractables (Oil and Grease)

Oil and grease discharges were lower for three of the seven refineries in 1987 than they were in 1986. The other four refineries discharged more. Total discharges decreased by 71.7 kilograms per day (305.5 kg/day in 1987 compared to 384.1 kg/day in 1986).

## 5.2 Organic Chemical Manufacturing Sector Status

The nineteen companies in the Organic Chemical Manufacturing (OCM) Sector manufacture products which include fibres (nylon, rayon, polyester, spandex), plastics (PVC, ABS, polyethylene, polystyrene), synthetic rubbers, phenol-formaldehyde resins, engineered resins, cellulosic film, chlorinated hydrocarbons, and synthetic detergent bases.

Because of the diversity of processes and products in the Sector and the resultant wide variation in the effluent contaminants, the MISA Monitoring Regulation currently being developed provides pipe specific monitoring schedules for each plant site.

To provide a data base on which to base the MISA Monitoring Regulation, the Sector companies agreed to carry out a pre-regulation monitoring program. This consisted of a four day in-depth characterization of their effluent streams for the 126 US EPA priority pollutants, polychlorinated biphenyls, and the ten dibenzo dioxin and dibenzo furan congeners. Open scans using gas chromatography/mass spectrometry were also carried out by the companies on a limited number of samples.

The Ministry of the Environment (MOE) carried out its own sampling and analysis as part of the same program.

In addition to the pre-regulation data, other data bases used to generate the monitoring requirements for the regulation included:

* MOE river pilot site investigations
* joint MOE and Environment Canada studies (Upper Great Lakes Connecting Channel Study)

* past MOE surveys
* past Environment Canada surveys
* historical company data
* U. S. EPA generic process files

The OCM Monitoring Regulation is expected to be issued for public comment in the fall of 1988.

### 5.3 Pulp and Paper Industry Sector Status

The Pulp and Paper Sector is composed of 28 mills in total. Of these 9 are Kraft Mills and the remainder are various types of Pulping Mills. The industry consists of chemical pulping mills (kraft, sulphite, etc.), mechanical pulping mills (stone groundwood, thermo-mechanical, chemi-mechanical, etc.), papermaking mills, (no pulping at all), deinking mills (used paper) and recycling mills (clean used paper). Eight of twenty-eight mills discharge into drainage basins other than the Great Lakes.

All pre-regulation monitoring has been completed by Industry, and the Ministry has received all of the data in a hard copy format. These data were then incorporated into the monitoring strategy. Negotiations are continuing with the industries to resolve differences in opion of toxicity testing, frequency of monitoring and combined effluent sampling versus individual process effluent sampling.

The quality of the pulp mill effluents is currently judged by three pollutant parameters - total suspended solids, biochemical oxygen demand (BOD) and the acute fish toxicity test.

All mills have a minmum of primary treatment to control total suspended solids (bark, wood fines, knots, fibre). Only seven mills in Ontario have some form of secondary treatment.

In the 1986 Industrial Direct Discharges Report, there was an extensive description of effluent limits - Environment Canada, U.S. E.P.A. and Ontario limits (Control Order or guidelines). In Canada some provincial agencies like British Columbia (B.C.) and Quebec have adopted their own tighter limits for conventional pollutants. For instance, B.C. has set BOD limits that are close to EPA numbers for kraft mills not discharged to the ocean. In this report only the comparison of effluents with Ontario limits and discharge trends of conventional pollutants has been included.

Before year end 1988 the Pulp and paper Monitoring Regulation should be released for public review and comment.

KRAFT MILL EFFLUENTS IN ONTARIO
In 1987 in response to the issue of pollution from the Kimberly-Clark mill effluent in Terrace Bay as evidenced by the failure to pass the acute toxicity test, a three man expert committee was commissioned. The expert committee was assigned to study pollution control from kraft mills in general, including control of persistent toxics such as dioxins and dibenzofurans.

In June 1988 the expert committee issued their report, Kraft Mill Effluents in Ontario. The highlights are:

> The report identifies four levels of pollution control. Each level requires successively more stringent limits on toxic discharges. Most Ontario kraft mills are currently at Levels I or II, with effluent which is lethal to fish
>
> The report says that most kraft mills can achieve Level III within three years with little net cost. Level III would require mills to reduce the discharge of Total

Organically Bound Halogen (TOX), a measure of organochlorines, by approximately 50 per cent and produce an effluent which is not lethal to fish. Level IV is attainable within five years.

The report says that most kraft mills can achieve Level III within three years with little net cost. Level III would require mills to reduce the discharge of Total Organically Bound Halogen (TOX), a measure of organochlorines, by approximately 50 per cent and produce an effluent which is not lethal to fish. Level IV is attainable within five years.

Kraft mills can cut toxic discharges by reducing the chlorine currently used in the bleaching process. Two major technologies - oxygen bleaching and high chlorine dioxide substitution - are identified as economical alternatives. These alternative methods are successfully used by many of Ontario's international competitors.

The report indicates that the kraft mills can afford to pay for the clean up of their toxic wastes.

In October 1987, the U.S. EPA/Paper Industry Co-operative Dioxin Screening Study was tabled in Congress. This study determined the presence and sources of dioxins, including 2,3,7,8-TCDD and furans at bleached kraft pulp and paper mills.

The findings are that 2,3,7,8-TCDD has been

(a) confirmed in landfill leachate in the low parts per quadrillion
(b) identified in bleached kraft pulp in the low parts per trillion
(c) identified in low parts per quadrillion in the treated effluent
(d) confirmed in the effluent sludge in the parts per trillion (because both dioxins and furans are being identified and quantified, much difficulty is being encountered in the verification of these sludge results).

The MOE Laboratory Services Branch analyses agree with the U.S study.

**TABLE 4**
**Pulp and Paper Comparison - Actual vs Ontario,**
**(in tonnes per day)**

| Company | Biochemical Oxygen Demand | | Total Suspended Solids | |
|---|---|---|---|---|
| | Actual | Ontario | Actual | Ontario |
| ABITIBI-PRICE INC. @ IROQUOIS FALLS | 42.4 | 69 | 5.5 | 9.1 |
| ABITIBI-PRICE INC. PROVINCIAL PAPERS | 3.4 | 7.3 | 0.9 | 2.5 |
| ABITIBI-PRICE INC. FORT WILLIAM | 12.43 | 14.5 | 1.83 | 2.5 |
| ABITIBI-PRICE INC. THUNDER BAY | 19.5 | 24.5 | 1.43 | 2.0 |
| BEAVER WOOD @ THOROLD | 1.98 | 2.5 | 1.09 | 0.9 |
| BOISE CASCADE CANADA LTD. @ FORT FRANCES | 9.63 | 14 | 4.53 | 7.5 |
| BOISE CASCADE CANADA LTD. @ KENORA | 22.98 | 35 | 3.39 | 4.5 |
| DOMTAR FINE PAPERS @ CORNWALL | 13.87 | 23 | 7.07 | |
| DOMTAR PACKAGING @ RED ROCK | 15.88 | 23 | 4.80 | 5.5 |
| DOMTAR FINE PAPERS @ ST. CATHARINES | 0.68 | 0.45 | 0.13 | 0.35 |
| DOMTAR CONSTR. @ THOROLD | 1.07 | 6.46 | 0.205 | 0.45 |
| DOMTAR PACKAGING @ TRENTON | 7.23 | 3.6 | 2.42 | 1.75 |
| E. B. EDDY FOREST @ ESPANOLA | 1.82 | 2.5 | 4.5 | 10.6 |
| E.B. EDDY FOREST PRODUCTS @ OTTAWA | 1.29 | 1.2 | 0.46 | 2.5 |
| FRASER @ THOROLD | 2.24 | 1.8 | .92 | 1.5 |
| GREAT LAKES FOREST PRODUCTS @ DRYDEN | 2.24 | - | 4.04 | 5.6 |
| GREAT LAKES FOREST PRODUCTS @ THUNDER BAY | 44.9 | 77.7 | 11.33 | 14.0 |
| JAMES RIVER @ MARATHON | 13.5 | - | 2.47 | 6.0 |
| KIMBERLY CLARK @ HUNTSVILLE | - | - | - | - |
| KIMBERLY CLARK @ ST. CATHARINES | .408 | .36 | 0.028 | 0.36 |
| KIMBERLY CLARK @ TERRACE BAY | 24.83 | | 5.57 | 8.0 |

Ontario = Ontario Requirement
Actual = Actual Annual Discharge
Total suspended solids in Ontario consist of bark, wood, fibre, clay, etc;

**TABLE 4**
**Pulp and Paper Comparison - Actual vs Ontario,**
**(in tonnes per day)**

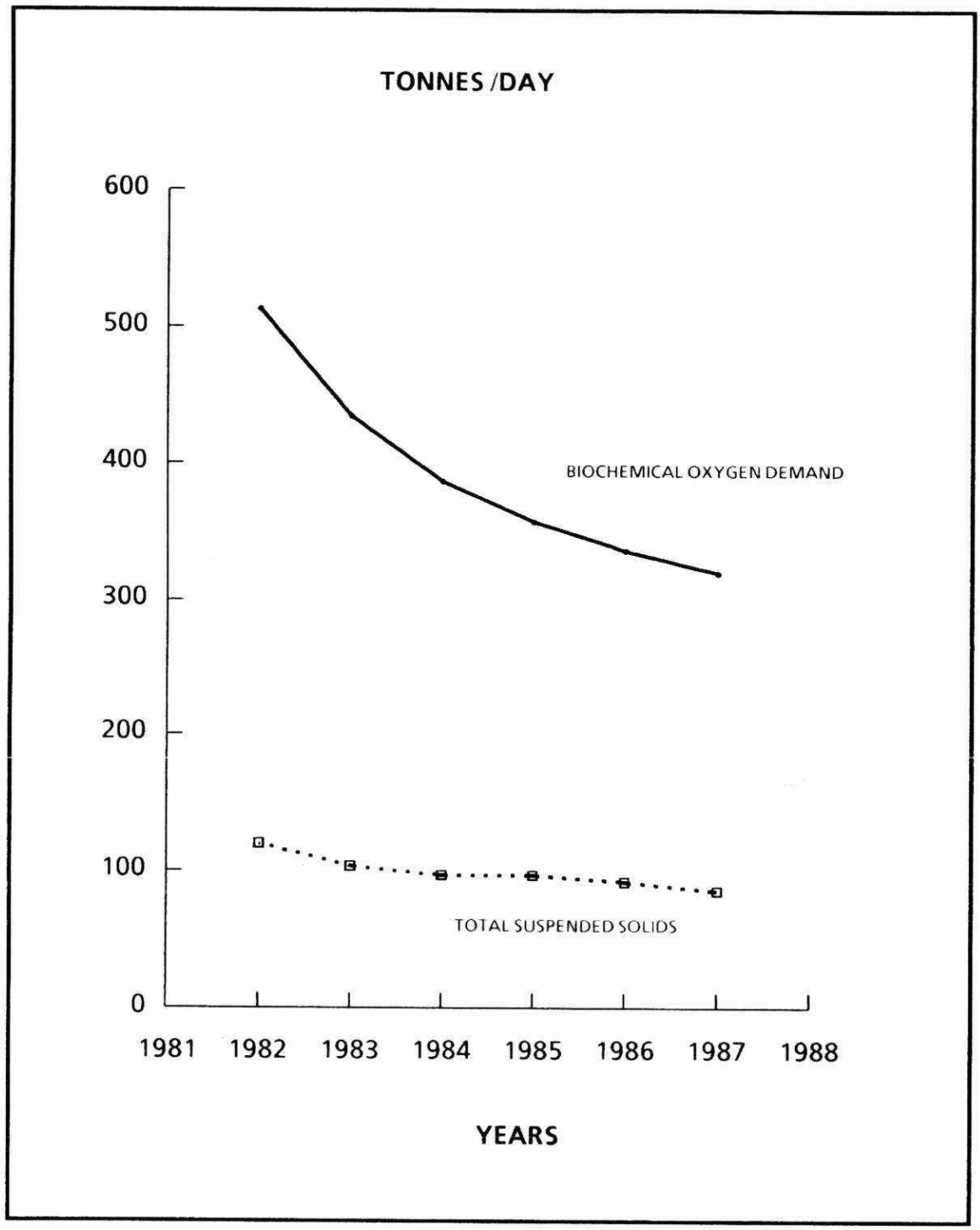
| Company | Biochemical Oxygen Demand | | Total Suspended Solids | |
|---|---|---|---|---|
| | Actual | Ontario | Actual | Ontario |
| MacMILLAN BLOEDEL @ STURGEON FALLS | 37.02 | 10.0 | 2.347 | 3.3 |
| MALETTE PULP & PAPER @ SMOOTH ROCK FALLS | 7.9 | 10.0 | 4.78 | 9.0 |
| THE ONTARIO PAPER CO. @ THOROLD | 4.2 | 18.14 | 4.75 | 6.8 |
| SPRUCE FALLS POWER AND PAPER COMPANY @ KAPUSKASING | 23.3 | 40 | 7.01 | 12.9 |
| ST. MARYS PAPER @ SAULT STE. MARIE | 2.96 | - | 3.45 | 6.61 |
| STRATHCONA PAPER @ STRATHCONA | 0.13 | - | 0.13 | 1.09 |
| TRENT VALLEY PAPER BOARD @ TRENTON | 1.77 | - | 0.5 | 0.14 |

Ontario = Ontario Requirement
Actual = Actual Annual Discharge
Total suspended solids in Ontario consist of bark, wood, fibre, clay, etc;

FIGURE 2

# PULP AND PAPER SECTOR STATUS

## TWO MAJOR PARAMETERS
## ONTARIO




YEARS

## TABLE 5
## PULP AND PAPER INDUSTRY STATUS
## (all data in tonnes per day)

| Great Lakes Basin | TOTAL SUSPENDED SOLIDS | | | | BIOCHEMICAL OXYGEN DEMAND | | | |
|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1984 | 1985 | 1986 | 1987 |
| ABITIBI-PRICE INC. PROVINCIAL PAPERS | 1.76 | 1.82 | 1.08 | 0.9 | 3.75 | 3.95 | 3.14 | 3.4 |
| ABITIBI-PRICE INC. FORT WILLIAM | 1.18 | 1.2 | 1.21 | 1.83 | 9.02 | 8.6 | 10.81 | 12.43 |
| ABITIBI-PRICE INC. THUNDER BAY | 1.15 | 1.26 | 1.4 | 1.43 | 19.6 | 19 | 20.93 | 19.5 |
| BEAVER WOOD @ THOROLD | 1.43 | 1.6 | 1.41 | 1.09 | 3.91 | 3 | 2.56 | 1.98 |
| DOMTAR CONSTR. @ THOROLD | .31 | .37 | .18 | 0.205 | .63 | .76 | .77 | 1.1 |
| DOMTAR FINE PAPERS @ ST. CATHARINES | .27 | .24 | .07 | 0.13 | .71 | .49 | .74 | 0.68 |
| DOMTAR FINE PAPERS @ CORNWALL | 8.68 | 9.4 | 7.91 | 7.07 | 19 | 17.1 | 15.14 | 13.87 |
| DOMTAR PACKAGING @ RED ROCK | 4.32 | 4.4 | 4.04 | 4.8 | 17.7 | 17.8 | 17.2 | 15.88 |
| DOMTAR PACKAGING @ TRENTON | .46 | .59 | 1.93 | 2.42 | 5.04 | 5.34 | 5.86 | 7.23 |
| E. B. EDDY FOREST @ ESPANOLA | 5.06 | 5.3 | 5.14 | 4.5 | 3.04 | 2.7 | 2.19 | 1.82 |
| FRASER @ THOROLD | 1.22 | 1.01 | .97 | .92 | 2.41 | 2.09 | 1.87 | 2.24 |
| GREAT LAKES FOREST PRODUCTS @ THUNDER BAY | 12.2 | 13.3 | 13.7 | 11.33 | 49.7 | 46.3 | 43.08 | 44.9 |
| JAMES RIVER @ MARATHON | 5.45 | 4.5 | 2.92 | 2.47 | 14.7 | 13.2 | 14.3 | 13.5 |
| KIMBERLY CLARK @ TERRACE BAY | 6.7 | 25.8 | 5.35 | 5.57 | 36 | 34.9 | 29.55 | 24.83 |
| KIMBERLY CLARK @ ST. CATHARINES | .05 | .05 | 0 * | 0.028 | .34 | .52 | .46 | 0.408 |

* Intake exceeded discharge

**TABLE 5 ...continued**

| Great Lakes Basin | TOTAL SUSPENDED SOLIDS | | | | BIOCHEMICAL OXYGEN DEMAND | | | |
|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1984 | 1985 | 1986 | 1987 |
| MacMILLAN BLOEDEL @ STURGEON FALLS | 2.20 | 2.40 | 2.51 | 2.37 | 50.70 | 41.70 | 38.48 | 37.02 |
| THE ONTARIO PAPER CO. @ THOROLD | 6.69 | 5.20 | 3.60 | 4.75 | 14.80 | 12.80 | 7.89 | 4.24 |
| ST. MARYS PAPER @ SAULT STE. MARIE | 2.53 | 3.20 | 3.55 | 3.45 | 4.80 | 3.60 | 2.85 | 2.96 |
| STRATHCONA PAPER @ STRATHCONA | 0.06 | 0.13 | 0.19 | 0.13 | 0.69 | 0.31 | 0.30 | 0.13 |
| TRENT VALLEY PAPER-BOARD @ TRENTON | 0.88 | 0.14 | .53 | 0.5 | - | 1.83 | 2.13 | 1.77 |
| SUB-TOTAL | 62.62 | 61.91 | 58.6 | 55.893 | 256.54 | 235.99 | 221.25 | 209.88 |

| Non - Great Lakes Basin | TOTAL SUSPENDED SOLIDS | | | | BIOCHEMICAL OXYGEN DEMAND | | | |
|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1984 | 1985 | 1986 | 1987 |
| ABITIBI-PRICE INC @ IROQUOIS FALLS | 5.60 | 5.6 | 5.41 | 5.5 | 45.70 | 47.60 | 47.74 | 42.2 |
| BOISE CASCADE CANADA LTD. @ FORT FRANCES | 8.9 | 6.1 | 4.52 | 4.53 | 11.2 | 12.1 | 10.49 | 9.6 |
| BOISE CASCADE CANADA LTD @ KENORA | 6 | 8.7 | 5.01 | 3.39 | 30.4 | 25 | 21.01 | 23 |
| E B EDDY FOREST PRODUCTS @ OTTAWA | .56 | .59 | 6.19 | 0.456 | 1.28 | 1.02 | 1.00 | 1.29 |
| GREAT LAKES FOREST PRODUCTS @ DRYDEN | 4.90 | 5 | 3.33 | 4.0 | 4.60 | 2.80 | 2.64 | 2.2 |
| KIMBERLY CLARK @ HUNTSVILLE | .008 | .001 | - | - | .008 | .008 | - | - |
| MALETTE PULP & PAPER @ SMOOTH ROCK FALLS | 2.30 | 2.4 | 2.92 | 4.8 | 9.60 | 7.80 | 7.05 | 7.9 |
| SPRUCE FALLS POWER AND PAPER COMPANY @ KAPUSKASING | 6.7 | 7.4 | 6.73 | 7.0 | 26.7 | 25.2 | 24.97 | 23.3 |
| TOTALS | 97.59 | 97.40 | 92.71 | 86.045 | 433.51 | 386.03 | 336.15 | 319.9 |

### 5.3.1 Total Suspended Solids

The total discharge of TSS for all Ontario mills decreased for 1987 compared to 1986 by 7,507 kilograms per day to 85,203. Of the 28 pulp and paper plants included in the inventory (Table 4), fourteen reported higher levels of suspended solids in 1987 over 1986 and thirteen reported lower levels. One no longer reports TSS. Total suspended solids discharges to the Great Lakes Basin decreased by 2,707 kilograms per day between 1986 and 1987 (58,600 kilograms compared to 55,893).

### 5.3.2 Biochemical Oxygen Demand

The total discharge of BOD for all Ontario mills for 1987 decreased by 16,690 kilograms per day compared to 1986. Seventeen of the 28 plants reporting BOD levels indicated a decrease in 1987 and ten indicated an increase. The 1987 BOD levels decreased by 11,370 kilograms per day (221,250 kilograms in 1986 compared to 209,880 kilograms in 1987) for the sources discharging to the Great Lakes Basin.

## 5.4 Metal Mining and Refining Sector Status

This sector consists of metal mines, salt mines and associated processing operations such as smelting and refining. The metal values are gold; silver; copper, nickel, lead, zinc; iron; uranium; and salt (sodium chloride).

Individual plants in this sector may be based on open pit or underground mining techniques; may or may not be associated with concentrators, smelters and refineries; may in an urban or remote setting; may employ less than 10 or more than 1,000 people; may or may not use organic reagents; and may employ technologies that are simple or extremely complex in nature.

All ore bodies are finite. That is, once ore reserves at a site are exhausted, operations terminate. Since some ore bodies are small, some mining operations have short lives. In addition, most mines sell products on international markets. Market demand can quickly turn an inactive mine into an active one while lack of international demand can force the closure of a property. As a result some mines can go from an active status to an inactive status and vice versa within a space of weeks or months.

Most mining operations produce large quantities of waste material that has the consistency of beach sand. this material is called tailings and is directed to and stored in large engineered basins called 'tailings areas'. The residence time in these areas can be significant and in most cases is in excess of 30 days. In some cases, the retention time usually results in good settling of solids. The frequency of discharge from these areas varies greatly and depends on factors such as the amount of wastewater being recycled back to the process and the ambient temperature. Because of extreme winter conditions, some areas have no effluent during the coldest months.

A large number of waste treatment strategies are required to control wastewater flows from mining operations when problems exist because ore types and associated processing varies greatly within the sector. While the control of suspended solids and pH are the most commonly encountered treatment requirements in the sector, effluents may contain metals, arsenic, and radio-active substances.

As of August, 1987, five meetings of the MISA Mining Sector group had taken place. A complete round of pre-characterization sampling at selected Ontario mining properties had also taken place A second round was done during the last week in August. A draft of the mandatory Monitoring Regulation is being prepared. All programs of the MISA Mining Sector are on schedule.

By the end of 1988 the Metal Mining and Refining Monitoring Regulation should be available for public review and comment.

## 5.5 Steel Industry Sector Status

Steel is produced at four Ontario locations as an integrated (coal, ore, iron concentrates, pig iron steel) operation by Dofasco, Stelco and The Algoma Steel Corporation Inc. Specialty steel is produced by Atlas Steel at Welland. Lasco (Lake Ontario Steel Company) at Whitby and Ivaco at L'Orignal melt steel scrap to produce low carbon steel.

To provide a data base for the development of the MISA Monitoring Regulation, the companies agreed to carry out three pre-monitoring sampling rounds. Data from the pre-monitoring activity together with those from the Upper Great Lakes Connecting Channels Study (UGLCCS) and from MISA Pilot site investigations will provide the basis for the Monitoring Regulation. Round One was completed in 1987 and the other two sampling rounds were completed by May 1988. In Round One analyses of EMPPL and open scans using gas chromatograph/mass spectrometry were carried out. Results of all the three rounds were discussed through the IJC. Nine JTC meetings have been held. A fully integrated report covering both Industry and Ministry data will be completed by a consultant in the near future to interpret data, and will highlight effectiveness of present measures.

The Industries within this Sector have been divided into two subgroups: Integrated Mills and Specialty Mills. These groups may be further divided as more information and data is received.

A draft regulation along with support documentation has been distributed for comments.

Effluent quality for the primary steel producers is indicated by five parameters: ammonia-nitrogen, phenols, cyanide, total suspended solids and oil and grease (solvent extractables) shown in Figure 3 and presented in Table 6.

### 5.5.1 Ammonia

Three of the four companies listed (Table 6) reported a decrease in ammonia discharges over 1986 and one company reported an increase. Total ammonia discharges in 1987 were lower than 1986 discharges by 553.77 kilograms per day (4,077 kilograms compared to 4,613 kilograms).

### 5.5.2 Phenolics

Two companies reported an increase in discharges of phenolics between 1986 and 1987; and two a decrease. Total discharges of phenolics for 1987 were 12.74 kilograms per day lower than they were in 1986 (137.8 kilograms compared to 150.54 kilograms).

### 5.5.3 Total Suspended Solids

One location reported a increase in suspended solids discharges between 1986 and 1987 and three reported an decrease. The 1987 total was 16,722 kilograms per day lower than the 1986 total (22,592 kilograms compared to 39,314 kilograms).

### 5.5.4 Solvent Extractables (Oil and Grease)

Three locations reported lower discharges of oil and grease (solvent extractables) in 1987 and one reported higher levels. The total discharge for 1987 was 4,018 kilograms per day lower than the 1986 total (2668 kilograms compared to 6687 kilograms).

### 5.5.5 Cyanide

At three locations, the reported cyanide discharges increased between 1986 and 1987. The reported cyanide discharge was lower at the fourth location. For 1987, the cyanide discharge was higher by 75.22 kilograms per day over the previous year (264.45 kilograms per day for 1987 and 189.23 kilograms per day for 1986).

**TABLE 6**
**STEEL INDUSTRY STATUS**
**(all data in kilograms per day)**

| | AMMONIA | | | | PHENOLICS | | | |
|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1984 | 1985 | 1986 | 1987 |
| ALGOMA STEEL CORP. @ SAULT STE. MARIE | 3490 | 4002 | 3993 | 3195 | 99 | 102 | 96.45 | 102.8 |
| DOFASCO @ HAMILTON | 1140 | 592 | 477 | 234.6 | 14.6 | 8.04 | 11.11 | 3.91 |
| STELCO @ HAMILTON | 525 | 156 | 134 | 640.5 | 43 | 31.4 | 42.9 | 31 |
| STELCO @ NANTICOKE | 6 | 4.83 | 8.66 | 7.33 | .07 | .04 | .08 | 0.09 |
| TOTALS | 5160 | 4755 | 4613 | 4077 | 186 | 141 | 150.54 | 137.8 |

| | SUSPENDED SOLIDS | | | | OIL & GREASE | | | |
|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1984 | 1985 | 1986 | 1987 |
| ALGOMA STEEL CORP. @ SAULT STE. MARIE | 7760 | 8580 | 9265 | 9701 | 1570 | 1880 | 1954 | 1544 |
| DOFASCO @ HAMILTON | 18100 | 11800 | 10515 | 4180 | 464 | 837 | 55 | 0 |
| STELCO @ HAMILTON | 18800 | 15500 | 19129 | 8356 | 3240 | 2170 | 4579 | 1010 |
| STELCO @ NANTICOKE | 285 | 455 | 405 | 355 | 38 | 69 | 98.67 | 114.1 |
| TOTALS | 44900 | 36335 | 39314 | 22592 | 5340 | 4939 | 6687 | 2668.2 |

**TABLE 6**
**STEEL INDUSTRY STATUS**
**(all data in kilograms per day)**

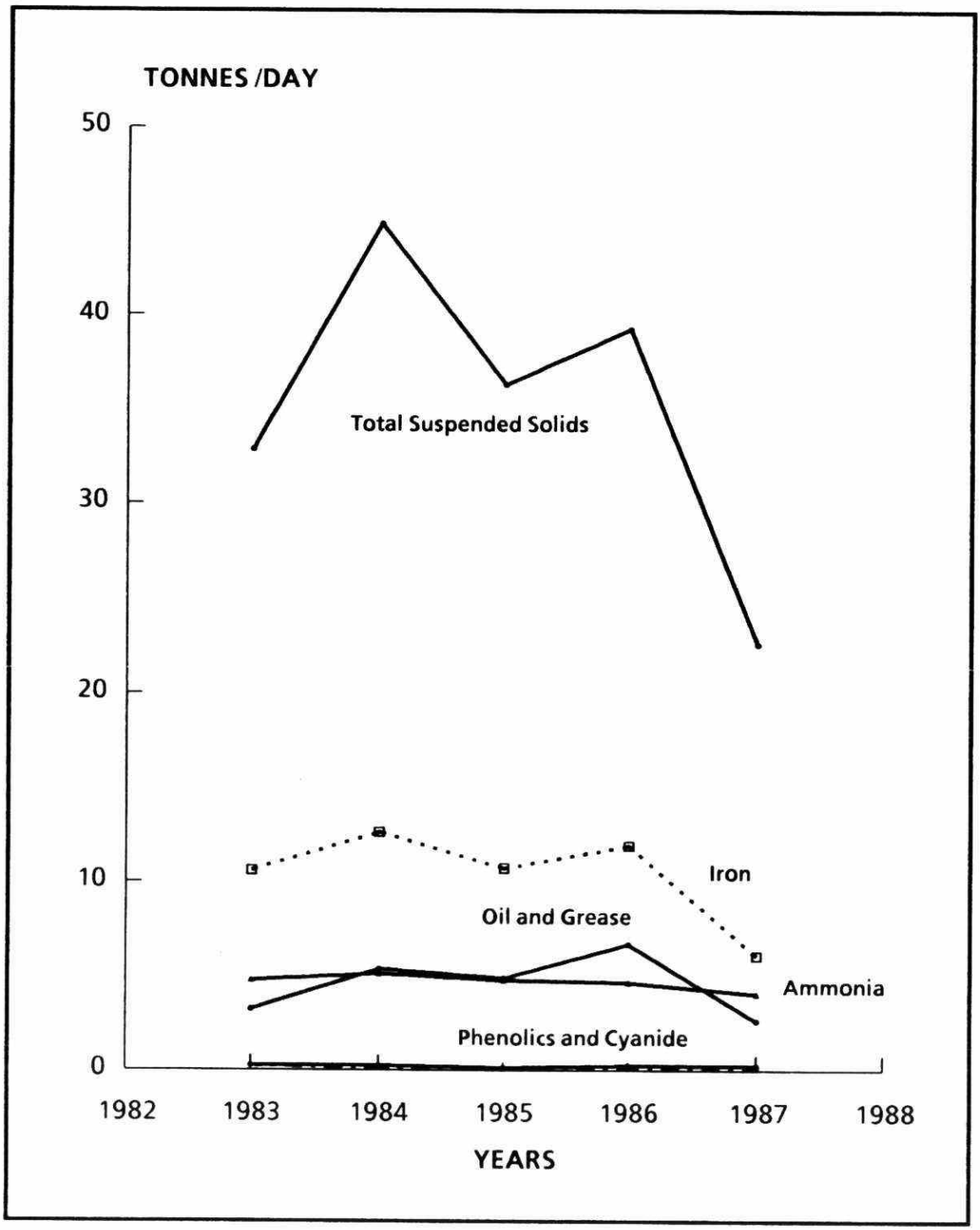
| | CYANIDE | | | | IRON | | | |
|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1984 | 1985 | 1986 | 1987 |
| ALGOMA STEEL CORP. @ SAULT STE. MARIE | 75 | 70.6 | 62.6 | 77.83 | 3490 | 4104 | 4685 | 2725 |
| DOFASCO @ HAMILTON | 31.3 | 21.1 | 53.0 | 65.02 | 3550 | 3800 | 4698 | 1548 |
| STELCO @ HAMILTON | 52 | 46.5 | 70.9 | 119 | 5580 | 2750 | 2521 | 1769 |
| STELCO @ NANTICOKE | 1.7 | 0.19 | 2.73 | 2.6 | 17 | 22.9 | 22.04 | 17.14 |
| TOTALS | 260 | 138.39 | 189.23 | 264.45 | 12600 | 10677 | 11916 | 6059 |

FIGURE 3

# STEEL SECTOR STATUS

## FIVE MAJOR PARAMETERS

## ONTARIO



## 5.6 Electric Power Generation Sector Status

Ontario Hydro produces electricity at seventy-six sites in the Province. At six of these sites electric power is produced by burning fossil fuels (oil, gas, coal). At two nuclear complexes power is produced by fission of uranium. Lastly, electric power is generated at sixty-eight hydraulic plants of which six have been selected as typical representatives for this group. In addition two fossil fuel plants are mothballed and one nuclear complex at Darlington near Bowmanville is under construction.

Atomic Energy of Canada (AECL) owns the Douglas Point nuclear generating station (being decommissioned), Chalk River Nuclear Laboratories and contents of the reactor core at the Rolphton Nuclear Power Demonstration (NPD NGS) facility (being decommissioned). The remaining facilities at NPD NGS, Rolphton are owned by Ontario Hydro.
The Heavy Water Plant and Sewage Treatment plants at Bruce and Darlington are also included in this sector.

The so called parallel generating stations which sell electricity to Ontario Hydro have been excluded from this sector at this time. They are primarily hydraulic stations and a few energy from waste stations which will be addressed within their respective sectors.

Plant site visits were completed in November 1987. Hydroelectric plants are being assessed for inclusion in the monitoring regulations. After completion of one round of pre-regulation monitoring in the fall of 1987, Ontario Hydro was requested to carry out additional pre-regulation monitoring at selected sites. This additional monitoring is now complete and results were available August 1988 to assist the drafting of the monitoring regulations.

Intergovernmental discussions are continuing between MOE, Environment Canada and the Atomic Energy Control Board to sign a Memorandum of Understanding covering the regulation of Nuclear facilities under the MISA program. The MOE will require monitoring of toxics and conventional pollutants in low level radioactive streams at nuclear plants while AECB is responsible for discharge requirements and monitoring for the radioactive contaminants in these streams.

As of September 1988, five Joint Technical Committee (JTC) meetings have been held. Various subcommittees have been formed to assist the JTC. A consultant has been retained to investigate and recommend flow measurement and sampling requirements. A draft Monitoring Regulation should be ready for public comment by second quarter 1989.

## 5.7 Inorganic Chemicals Producers Sector Status

The Inorganic Chemicals Sector comprises of 21 companies whose products include nitrogen fertilizers, aluminum oxide (abrasives), chlorine gas and explosives, fiberglas and carbon black. In other words, the Inorganic Chemicals Producers Sector has been defined to encompass all point source dischargers which process, manufacture, package, or blend inorganic chemicals.

The significant parameters for pollution control in this sector have traditionally been pH and TSS (total suspended solids). Primary treatment is employed in 50% of the plants presently in the sector.

The sector has completed a 4-day pre-regulation monitoring program of priority pollutants (EMPPL) in their effluents in preparation for the monitoring regulation. The data is presently being evaluated by the Ministry and will be used to determine

monitoring frequencies for specific parameters under the year-long monitoring regulation.

One of the first pre-regulation programs undertaken by the Ministry was to gather additional information on the industry by questionnaires and site visits, particularly on the plant processes and treatment systems currently in use. Appropriate points in plant process effluent streams for sampling and flow measurement were determined during the visits.

Monitoring schedules are being prepared. These describe the contaminants to be monitored along with their associated monitoring frequencies.

A regulation writing team has been formed for the sector reporting to the sectorial Joint Technical Committee and its first meeting was held in June/88. The team which has representatives from government and industry will be responsible for writing a monitoring regulation for this sector.

As of June 1988, four JTC meetings have taken place. A Monitoring Regulation should be ready for public comment by early 1989.

### 5.8 Metal Casting Industries Sector Status

Metal casting plants or foundries melt the metal produced by primary producers from ore and cast the metal into specific products - engine blocks, etc. The Metal Casting Sector composed of twenty-three plants, produces ferrous, magnesium, aluminum, brass and copper products. It includes large companies such as Ford and Chrysler and also includes a number of smaller companies. Additional plants may be added to this sector.

The foundries may discharge any one of or all of process wastewaters, cooling waters and/or stormwater. The process effluent contains metals, particulate, organics (mainly from resin binders used to make sand molds) and oil and grease.

Four JTC meetings have been held. Three pre-regulation monitoring sampling rounds have been undertaken. In addition the Ministry has agreed to sample three small companies that can not afford to do so themselves.

To date a total of ten site visits have been carried out. The majority of the remaining site visits will probably be carried out by a consultant. Based upon information received on these site visits, companies within this Sector may be classified into sub-groups.

A draft copy of the Sector monitoring strategy has just been completed (August 1988) and is being circulated within the Ministry for review and comments. The Monitoring Regulation for public comment is expected to be completed by mid 1989.

### 5.9 Industrial Minerals Producers Sector Status

The Industrial Minerals Sector is a relatively recent addition to the MISA Industrial Sectors list. The sector, which includes approximately 94 plants, has been tentatively defined to include non-metallic minerals (such as gypsum, talc, calcite) and structural materials (for example, gravel, sand, cement).

A JTC for the Industrial Minerals Sector has been formed, with representatives from four Ministries (Environment, Natural Resources, Northern Development and Mines, Ministry of Transportation and Communication), Environment Canada, and five industrial associations:

- Aggregate Producers Association of Ontario
- Canadian Portland Cement Association
- Ontario Mining Association
- Clay Brick of Ontario
- Ontario Lime Producers

The first JTC meeting for this sector was in June 1988. Initial contact with sector companies has only recently begun and to date tours of ten plants have been completed. These tours are being undertaken in two stages: initial visits serve to identify plant contacts and the general nature of the facility; a second visit will provide the Ministry the opportunity to conduct a detailed examination of flow measurement and sampling practices and equipment.

## 6.0 SELF MONITORING REQUIREMENTS AND AUDIT PROCESS

All of the plants included in this report monitor their own discharges. The monitoring requirement and schedules are expressed in Control Orders, Certificates of Approval or specific regulations such as the Federal Chloro-Alkali Regulation. Some plants provide monitoring results on a voluntary basis. To ensure that the self-monitoring data are accurate, the Ministry of the Environment takes random audit samples.

The following is a description of the Ministry's audit programs:

The Ministry of the Environment conducted audits of industry supplied data on effluents throughout 1987 in these ways:

1. 24-Hour composite samples were split between the source and the Ministry, and results were compared.

2. Grab samples were split between the source and the Ministry, and the samples were compared.

3. Random samples were taken by the Ministry, and the results were compared to the industry's reported results for an adjacent period.

4. In some cases, where conditions warranted, intensive cross-industry audits were done.

Many industries in IMIS agreed to intensive monitoring of their effluents as part of the MISA pre-regulation phase.

The Ministry of the Environment obtained duplicate samples in conjunction with this program. The resulting data is being used to develop the requirements of the Regulatory monitoring of MISA.

The audit programs and the MISA discussions have revealed, in some cases, substantive differences in sampling and analytical methods that make direct comparisons of results invalid. Those problems are being addressed on a case-by-case basis.

It is planned that the Ministry will continue the audit program in the existing format until MISA is implemented. Each monitoring regulation under MISA has a component that

addresses quality control and quality assurance as well as requiring consistent analytical methods and sampling techniques. In addition the Ministry is increasing its regional operations and laboratory staff in order to carry out a more extensive audit program.

### 6.1 Enforcement Actions

The Ministry of the Environment, Investigations and Enforcement Branch, was formed in 1985. Regional staff refer incidents, etc., to this Branch for investigation and possible follow-up with prosecution. Note that exceedance of a monthly average requirement does not necessarily mean that charges are laid.

A total of two prosecutions were initiated for 1987 water related offences. As of June 1, 1988 one of these cases was still before the courts and one had been concluded, resulting in a conviction and fines totalling $38,000.*

An update of outstanding prosecutions for 1986 water related offences, shows that fines totalling $39,000 were imposed in three separate cases. The conviction for one of these cases has been appealed.

* NOTE: These statistics relate only to the companies listed in the 1987 Industrial Discharges Report.

## TABLE 7
## 1987 WATER RELATED OFFENCES FOR WHICH CHARGES HAVE BEEN LAID

| COMPANY | OFFENCE DATE AND DESCRIPTION | DISPOSITION |
|---|---|---|
| 1. Boise Cascade Canada Ltd. Fort Francis, Northwest Region | July 31, 1987 Spill of oil into the Rainy River E.P.A S.13(1)a O. W. R. A. S. 16 (1) | Trial date March 7, 1988. Convicted and fined $19,000 each count. Total fine $38,000. |
| 2. James River Marathon Ltd. Marathon Northwest Region | March 1, 2, 1987 Discharge of 5,000 gallons of turpentine into Jellicoe Cove E.P.A. S.13(1)a O.W.R.A. S.16(1) | Trial set for October 11 - 14 1988. |

## OCTOBER 1987, REPORT
## UPDATE OF OUTSTANDING 1986 WATER RELATED OFFENCES FOR WHICH CHARGES WERE LAID

| COMPANY | OFFENCE DATE AND DESCRIPTION | DISPOSITION |
|---|---|---|
| 1. Wickes Manufacturing Company Ltd. Windsor Southwest Region | March 28/86 - discharge of wastewater with high levels of chromium into the Little River. | Trial set for Oct. 20 - 23/87 rescheduled to March 1/88. Convicted and fined $15,000 |
| 2. Ford Motor Co. of Canada Ltd. Windsor Southwest Region | Aug. 7 and 10/86 - discharging oil to the Detroit River | Trial set for Dec. 9 - 11, 1987. Trial adjourned to June 30/88 for sentencing. Convicted and fined $15,000 ($5,000 each for 3 charges under the O.W.R.A.). Conviction appealed. |
| 3. The Algoma Steel Corporation Ltd. Sault Ste. Marie Northeast Region | Sept. 14 - 15, 1986 - discharge of process effluent iron hydroxide into the St. Mary's River. | Trial date Jan. 18/88. Guilty plea. Convicted and fined $9,000 - S. 16(1) O.W.R.A. Remaining charges withdrawn. |

## 7.0 DATA COLLECTION SYSTEM (IMIS)

The Industrial Monitoring Information System (IMIS), an electronic storage and retrieval program, was used to collect data for the annual discharge reports. Discharge data from the industrial plants were first submitted to the Ministry of the Environment District Offices, which in turn, transferred the data to the IMIS. Master data files are maintained at the Downsview Computer Centre (DCC) in Toronto and information can be retrieved by the Regional Offices as well as the Head Office. Monthly averages, as reported in Appendix A, were taken from the IMIS data banks.

## 8.0 Notes on Toxicity

### 8.1 Toxicity Testing

The acute toxicity or acute lethality test has been used by the Ministry since 1965 as a biological parameter. The results of toxicity testing in this report are based on a procedure common to water quality assessment in Canada. Rainbow trout are exposed to a series of dilutions of the test sample under static conditions and an observation of mortalities over a period of four days (96 hours) is made. From these observations, an LC50 is estimated. LC50 represents the "median lethal concentration". The 96 hour LC50 is the concentration, expressed in either percent (%) effluent, mg/l or other unit of concentration, that kills 50% of the animals during 96 hours of exposure. "Chemical examination alone of a complex industrial waste does not provide sufficient information on their effects on the aquatic biota for the protection of the aquatic environment. Moreover, the toxicity of a complex mixture of wastes and chemicals cannot be determined by chemical means." (1).

The best use of biological testing is to determine whether toxicity exists. If an effluent is toxic, the best use of chemistry is to subsequently determine what is the cause of that toxicity. While fundamental to monitoring and control of discharges, chemical analyses represent only an indirect means of determining potential effects in the receiving water. The knowledge of effects caused by various concentrations and mixtures in various kinds of water is a most important yet elusive link between knowledge of effluent concentrations and environmental effects. Toxicity tests on the other hand represent a direct measure of significant environmental impact. To be sure, there are problems of variability and confounding environmental factors such as pH, hardness and temperature, yet these are minor factors compared to the uncertainty of judging environmental impacts based on chemical parameters alone.

Many people equate "toxicity" with acute lethality to fish, since that is a common use, but toxicologists think of toxicity in much broader terms and include bioaccumulation, growth effects, reproduction effects etc.

The broader viewpoint is appropriate to any wastes in surface waters. "Toxicity" therefore is any undesirable effect on organisms or ecosystems.

An acute effect comes speedily to a crisis or end-point while a chronic effect is long lasting or continued. The words "acute" and "chronic" in connection with toxicity tests refer to short (acute) and long (chronic) exposures. They require a specific organism as a reference. For Daphnia (water flea), with a life cycle of weeks, acute usually means two days or less while chronic usually means a week or more. However, for trout with a life cycle of years, acute usually means four days or less and chronic means several months or more.

## 8.2 The Basic Principles

In the basic, short-term acute lethality test, an equal number of test animals are put into each container and are exposed to the sample and dilutions of the sample for 96 hours. The number of dead animals in each effluent container is counted and removed at regular, pre-determined periods. Following the exposure period, the LC50 is calculated. The protocol describing details of the rainbow trout static 96-hr acute lethality test is available from the Aquatic Toxicity Unit from John Lee at (416) 235-5806 or Gary Westlake at (416) 235-5797. In addition to the protocol, it is important that special attention be given to sampling, shipping and storing of samples for toxicity tests.While the total time fromsampling to performing the test must be within five days, no more than two of these days should be spent in shipping or at high temperatures. For each test run, 80 litres of the effluent sample should be sent in plastic pails lined with bags with no head space. The Aquatic Toxicity Unit of the Water Resources Branch maintains facilities at the Rexdale Laboratory to conduct static bioassays.

The unit of measurement of the short-term toxicity test is the estimated median lethal concentration (LC50). This value is the concentration which is lethal to 50% of the test animals at the end of a predetermined exposure interval. Thus, a 96-hour LC50 concentration of a toxicant will kill half the test organisms in 96-hours. It is important that the LC50 not be confused with a "safe concentration" of a toxicant. Usually the safe concentration of a substance or effluent is obtained by multiplying the LC50 value by an appropriate application factor and/or by reviewing sublethal and chronic data for fish and other aquatic organisms.

If all discharges do not kill fish at any point in the environment including at the point of discharge, meaningful improvements in Ontario's water quality will occur. The same philosophy was used in the development of sectoral regulations under the federal Fisheries Act in the early 1970's. These regulations have only been partly effective since the toxicity control was included only as a guideline, or as a Regulation (for new, altered or expanded plants) which may not have been implemented.

Substances in the effluents which are more persistent or can bioaccumulate to high concentrations in biota will require much greater control. Substances in this category include many of the metals (e.g. mercury) and some higher molecular weight chlorinated organics (e.g. pentachlorophenols).

The rainbow trout is not the most sensitive organism in aquatic environments. It is chosen as a test species partly because it is robust enough to be cultured conveniently in the laboratory while most aquatic species cannot be cultured. If rainbow trout barely survive conditions of a discharge in four days, there are surely many organisms just as important to the aquatic community that would survive for only very short periods. The fixed period of four days is primarily chosen to express results in a reproducible fashion. Yet, because the response to most toxicants is logarithmic with respect to the duration of exposure, the majority of mortalities most commonly occur near the beginning of the test.

Given the complex mixture of substances in effluents, a lack of toxicological data and environmental criteria for many industrial substances, and an inadequate understanding of additive synergistic or antagonistic effects, more and more industrial and regulatory agencies are turning to the use of whole effluent toxicity testing for monitoring and controlling discharges to the aquatic environment. The integrative nature of the test measures the lethality of all the toxicants present acting simultaneously.

Under the Canada-Ontario Environment accord, Ontario has agreed to establish and enforce effluent requirements at least as stringent as the agreed federal national baseline requirements. These requirements as noted above apply immediately to all new or expanded production facilities and were originally intended to apply as rapidly as possible to existing facilities.

The provincial government may impose more stringent standards than the federal requirements and if so, the more stringent requirements will prevail. The Ontario Ministry of the Environment utilizes the fish toxicity test to identify industrial discharges acutely lethal to aquatic organisms as referred to in Policy 3 of the Ministry's Water Management Goals, Policies, Objectives and Implementation Procedures (2).

Toxicity and MISA (Municipal/Industrial Strategy for Abatement)

The Municipal/Industrial Strategy for Abatement or MISA is intended to provide a uniform and systematic way of integrating water management activities leading to a comprehensive abatement strategy to control hazardous as well as conventional discharges from municipal and industrial sources.

## 8.3 Legal Authority

Existing water pollution legislation obligates the Ministry to ensure that discharges are being assessed and controlled with respect to toxicity. A discharge that kills fish is considered to be a "contaminant" under Section 13 of the Environmental Protection Act (4). Several successful prosecutions using toxicity evidence support this contention.

The toxicity test may also be used to determine violations of the following provincial legislation (3), (4):

a) The Ontario Water Resources Act; Revised Statutes of Ontario, 1980, Chapter 361, Section 16

16.- (1), Every municipality or person that discharges deposits or causes or permits the discharge of any material of any kind into or in any lake, well, river, pond, spring, stream, reservoir or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of any well, lake, river, pond, spring, stream, reservoir or other water or water course is guilty of an offense. R.S.O. 1980, c. 361, s. 16 (1); 1986, c. 68, s. 23 (1).

b) The Environmental Protection Act; Revised Status of Ontario, 1986, Chapter 141, Section 13

13.- (1), Notwithstanding any other provision of this Act or the regulations, no person shall deposit, add, emit or discharge a contaminant or cause or permit the deposit, addition, emission or discharge of a contaminant into the natural environment that,

a) causes or is likely to cause impairment of the quality of the natural environment for any use that can be made of it;

b) causes or is likely to cause injury or damage to property or to plant or animal life;

(c) causes or is likely to cause harm or material discomfort to any person;

(d) adversely affects or is likely to adversely effect the health of any person;

(e) impairs or is likely to impair the safety of any person;

(f) renders or is likely to render any property or plant or animal life unfit for use by man;

(g) causes or is likely to cause loss of enjoyment of normal use of property; or

(h) interferes or is likely to interfere with the normal conduct of business. R.S.O. 1980, c. 141, s. 13 (1); 1983, c. 52. s. 4.

## 8.4 Toxicity References


1. Standard Methods for the Examination of Water and Wastewater. 14th ed. 1975. Prepared and published jointly by: American Public Health Association, American Water Works Association, Water Pollution Control Federation.

2. Water Management Goals, Policies, Objectives and Implementation Procedures. Ontario Ministry of the Environment. November, 1978.

3. The Ontario Water Resources Act. Revised Statutes of Ontario, 1980. Chapter 361.

4. The Environmental Protection Act, 1971. Statutes of Ontario 1971. Chapter 86.

5. Protocol To Determine the Acute Lethality of Liquid Effluents to Fish (1983) M.O.E

6. Daphnia magna Acute Lethality Test Protocol (1988) M.O.E

## 9.0 ENQUIRIES

Enquiries about a specific source's effluent loadings and status of abatement may be directed to:

- the owner of the source
- Ministry's Regional Office or District Offices.

Ministry addresses are provided at the end of the report (Appendix H).

Copies of this report are available from:

Director,
Communications Branch
Ministry of the Environment
135 St. Clair Ave. West (6th Floor)
Toronto, Ontario
M4V 1P5
(416) 323-4324

Enquiries concerning the toxicity section and test resúlts in this report may be directed to the:

Aquatic Toxicity Unit
Water Resources Branch
125 Resources Road
Rexdale, Ontario
(416) 235-5797 or 235-5806

Enquiries concerning this report and the industrial abatement program may be directed to the:

Manager, Project and Data Management Section
MISA Office
Water Resources Branch
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
(416) 323-4886

Manager, Industrial Section
MISA Office
Water Resources Branch
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5
(416) 323-2664

## Appendix A

## Wastewater Discharge Summary Sheets

The tables in Appendix A have been printed directly from the Industrial Monitoring Information System (IMIS). The following example shows the format used for chemical parameters:

PHOSPHOR UNF. TOT
KG/DAY (PPUT)

*PHOSPHOR UNF. TOT* is 'phosphorus unfiltered total'. Some of the chemical parameter names are abbreviated due to lack of space in the name field in the IMIS data base.

The following list shows parameter names which have been abbreviated or changed substantially from previous years. **Column A** shows those chemical parameter names as they appear in this report while **Column B** shows the same parameter as it appeared in previous industrial discharge reports.

| Column A | Column B |
|---|---|
| BOD 5 | BIOCHEMICAL OXYGEN DEMAND |
| CHEM. OX. DEMAND | CHEMICAL OXYGEN DEMAND |
| K'DAHL N | KJELDAHL NITROGEN |
| NH3-N | AMMONIA NITROGEN |
| NH4-N | AMMONIUM ION |
| NO2 + NO3N | NITRITES AND NITRATES |
| NO3-N | NITRATES |
| PO4 | PHOSPHATES |
| RESIDUE FILTERED | DISSOLVED SOLIDS |
| RESIDUE PARTIC. | SUSPENDED SOLIDS |
| RESIDUE TOTAL | TOTAL SOLIDS |
| SOLVENT EXTRACT. | OIL AND GREASE |
| TEMP RISE | TEMPERATURE RISE |

*KG/DAY* in this example is kilograms per day and represents a loading value. Other units used are M3/DAY (cubic metres day) for flow; MG/L (milligrams per litre), UG/L (micrograms per litre) and NG/L (nanograms per litre) for concentration.

*(PPUT)* is the Ministry Laboratory parameter code for 'phosphorus unfiltered total'. Further information on parameter codes used in the discharge data tables is available from:

Laboratory Services Branch,
Laboratory Computer Systems -
Quality Assurance Section.
125 Resources Road
Rexdale, Ontario
M9W 5L1
Phone: (416) 235-5840

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Abitibi-Price Inc. Iroquois Falls

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Abitibi River
INDIRECT: Moose River to James Bay

DESCRIPTION OF ACTIVITY: Logs and wood chips (softwoods - black spruce, jack pine, balsam fir) are converted into newsprint by two different processes - stone groundwood and sulphite. The newsprint is brightened by hydrosulphite.

EFFLUENT QUALITY: Contains suspended solids (bark, wood, paper) and a variety of organic compounds in the spent sulphite cooking liquor.

EFFLUENT TREATMENT: In-mill screens remove some bark and groundwood fibre prior to the clarifiers. Two clarifiers are used to remove solids.

DISCHARGE TYPE: Continuous outfall.

COMMENTS:

Control Order specifies a BOD5 limit of 69 tonnes/day averaged over 30 consecutive working days. Control Order specifies a Suspended Solids limit of 9.1 tonnes/day averaged over 30 consecutive working days and a maximum daily limit of 18.2 tonnes/day.

The mill's final treated effluent normally is toxic to fish. Three trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 10.0% to 35.5%.

IMIS NO.: 0000860403 SIC CODE: 031, 271 MOE REGION: Northeast DISTRICT: Timmins

06/30/88

000086-04-0(3) ABITIBI-PRICE INC IROQUOIS FALLS MILL IROQOIS FALLS REPORT DATE: 16 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 54227 | 52426 | 50150 | 49823 | 52629 | 55317 | 54074 | 55728 | 59812 | 59355 | 54289 | 51453 | 54106.91 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 55300 | 63100 | 53500 | 47600 | 49800 | 29500 | 17700 | 31500 | 39900 | 41600 | 38700 | 38400 | 42200 | 0 |
| KG /DAY (BOD5 ) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |
| RESIDUE FILTERED | ACTUAL | | | | | | | | | | | | 4300 | 4300 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 5700 | 6300 | 5400 | 6500 | 4700 | 7400 | 5300 | 5000 | 4900 | 5100 | 5300 | 4300 | 5500 | 0 |
| KG /DAY (RSP ) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Abitibi-Price Inc.
& PLANT LOCATION: Fort William Division
Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Thunder Bay (Lake Superior )
INDIRECT:

DESCRIPTION OF ACTIVITY: Newsprint is made mainly from softwoods (black spruce, balsam fir) logs and chips by using the stone groundwood and Sulphonated Chemical Mechanical processes. Newsprint is brightened by hydrosulphite.

EFFLUENT QUALITY: Contains suspended solids (bark and wood fibre etc) and organic compounds from the pulping processes.

EFFLUENT TREATMENT: Clarifier and a lagoon handle woodroom effluent. Two settling lagoons handle the rest of the mill effluent.

DISCHARGE TYPE: three continuous surface discharges

COMMENTS:

Effluent quality met Ministry requirements. A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings on the total mill effluent discharged (BOD - 42.5 kg per metric ton of product produced or alternatively 14.5 metric tons per day averaged over any 30 consecutive working days and Suspended Solids of 50 mg per litre or alternatively 2.5 metric tons per day averaged over any 30 consecutive working days).

Six trout bioassays conducted in 1987 indicated the woodroom and main sewer effluents to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 1.9% to 10.0% and 11.0% to 20.2% for the woodroom and the main sewer effluents respectively.

IMIS NUMBER: 0000860205 SIC CODE: 271 MOE REGION: Northwest DISTRICT: Thunder Bay

06/28/88

000086-02-0(5) ABITIBI-PRICE FORT WILLIAM DIV. THUNDER BAY REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 23972 | 23774 | 23345 | 24240 | 25101 | 26278 | 32069 | 26431 | 27082 | 27947 | 26033 | 25925 | 26016.41 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 13210 | 14600 | 14600 | 13900 | 10800 | 10000 | 11700 | 11800 | 11300 | 12400 | 12600 | 12300 | 12434.16 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 14500 | 14500 | 14500 | 14500 | 14500 | 14500 | 14500 | 14500 | 14500 | 14500 | 14500 | 14500 | 14500 | 2 |
| PHOSPHOR UNF.TOT. | ACTUAL | 14.63 | 13.43 | 15.5 | 17.11 | 15.33 | 15.27 | 20.12 | 16.96 | 17.46 | 21.19 | 17.82 | 16.77 | 16.79916 | |
| KG /DAY (PPUT ) | GUIDELINE | 23.972 | 23.774 | 23.345 | 24.24 | 25.101 | 26.278 | 32.069 | 26.431 | 27.082 | 27.947 | 26.033 | 25.925 | 26.01641 | 0 |
| RESIDUE PARTIC. | ACTUAL | 1900 | 1970 | 1780 | 1430 | 1010 | 1400 | 2300 | 2170 | 2240 | 2200 | 1700 | 1910 | 1834.166 | |
| KG /DAY (RSP ) | GUIDELINE | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Abitibi-Price Inc.
Thunder Bay Division
Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood (black spruce, balsam fir, jack pine) logs are made into newsprint by the stone groundwood and sulphite pulping processes. Hydrosulphite is used to brighten newsprint.

EFFLUENT QUALITY: Contains suspended solids (bark and wood fibre) and many organics (mainly the spent sulphite cooking liquor).

EFFLUENT TREATMENT: A woodroom clarifier and two parallel lagoons (2.75 acres each) remove solids.

DISCHARGE TYPE: continuous surface

COMMENTS:

A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 24.5 metric tonnes/day or 57 kg per metric tonne of product and TSS - 2.0 metric tonnes/day or 50 milligrams per litre). In addition, the company is required to study sources of toxicity in the mill effluent.

This mill's final treated effluent normally is toxic to fish. Three trout bioassys conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 13.4% to 23.2%.

IMIS NUMBER: 0000860007 SIC CODE: 271 MOE REGION: Northwest DISTRICT: Thunder Bay

06/28/88

000086-00-0(7) ABITIBI-PRICE THUNDER BAY DIV. THUNDER BAY REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 38852 | 39775 | 39972 | 39560 | 40444 | 39708 | 33900 | 38591 | 36906 | 33809 | 37074 | 35150 | 37811.75 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 16900 | 24400 | 23300 | 23200 | 24200 | 19600 | 13000 | 17000 | 16700 | 16300 | 21200 | 18500 | 19525 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 24500 | 24500 | 24500 | 24500 | 24500 | 24500 | 24500 | 24500 | 24500 | 24500 | 24500 | 24500 | 24500 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 12.43 | 14.45 | 12.79 | 11.47 | 14.55 | 14.45 | 6.27 | 10.03 | 9.48 | 7.44 | 12.98 | 8.436 | 11.23133 | |
| KG /DAY (PPUT ) | GUIDELINE | 38.852 | 39.775 | 39.972 | 39.56 | 40.444 | 39.708 | 33.9 | 38.591 | 36.906 | 33.809 | 37.074 | 35.15 | 37.81175 | 0 |
| RESIDUE PARTIC. | ACTUAL | 1720 | 1650 | 1670 | 1590 | 1840 | 1450 | 1050 | 1410 | 1230 | 1020 | 1200 | 1360 | 1432.5 | |
| KG /DAY (RSP ) | GUIDELINE | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Agnico Eagle Mines Ltd. (Penn Mill) Cobalt

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Giroux Lake
INDIRECT: 8 km from Montreal R.

DESCRIPTION OF ACTIVITY: Gravity and flotation concentrates produced from silver ore.

EFFLUENT QUALITY: Contains dissolved metal salts of silver, cobalt, copper etc.

EFFLUENT TREATMENT: Tailings impoundment in former lake basin (Glen Lake).

DISCHARGE TYPE: Continuous

COMMENTS:

Mill burned to ground during winter 1985-86 - New mill commenced operation in July 1987. Minor arsenic exceedances may be apparent only as company reports gross losses. There is a significant arsenic content in raw process water due to contamination of supply from defunct mining operations. Compliance determined by guidelines for Environmental Control in the Ontario Mineral Industry. Company has submitted application for certificate of approval to upgrade tailings impoundment facilities.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NO.: 0001520105 SIC CODE: 0593, 295 MOE REGION: Northeast DISTRICT: North Bay

09/06/88

000152-01-0(5) AGNICO EAGLE MINES LIMITED - PENN MILL COBALT REPORT DATE: 31 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC UNF.TOT. | ACTUAL | | | | | | | 0.35 | 0.57 | 0.55 | 1.04 | 0.59 | 0.45 | 0.591666 | |
| MG/L (ASUT ) | GUIDELINE | | | | | | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 4 |
| IRON UNF.TOT. | ACTUAL | | | | | | | | 0.05 | | | | | 0.05 | |
| MG/L (FEUT ) | GUIDELINE | | | | | | | | 1 | | | | | 1 | |
| NICKEL UNF.TOT. | ACTUAL | | | | | | | 0.12 | | | | | | 0.12 | |
| MG/L (NIUT ) | GUIDELINE | | | | | | | 1 | | | | | | 1 | 0 |
| PH | ACTUAL | | | | | | | 8.45 | 8.37 | 8.28 | 8.04 | 8.25 | 8.24 | 8.271666 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | | | | | | | 6.5 | 2.25 | | | | | 4.375 | |
| MG/L (RSP ) | GUIDELINE | | | | | | | 15 | 15 | | | | | 15 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 TIMES OUT OF 16, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Agnico Eagle Mines Ltd. (Refinery) Cobalt

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT : 5.5 km from Farr Creek
INDIRECT: 109 km from Montreal R.

DESCRIPTION OF ACTIVITY: Refining and smelting of silver concentrates.

EFFLUENT QUALITY: Contains dissolved metal salts of silver, cobalt, copper, arsenic etc.

EFFLUENT TREATMENT: Cyanide destruction

DISCHARGE TYPE: Continuous

COMMENTS:

Minor arsenic exceedances may be apparent only as company reports gross losses. There is a substantial arsenic content in raw process water due to contamination by abandoned tailings deposits. Compliance determined by guidelines for Environmental Control in the Ontario Mineral Industry. The company installed monitoring devices in 1987.

IMIS NO.: 0001520006 SIC CODE: 0593 295 MOE REGION: Northeast DISTRICT: North Bay

06/01/88

000152-00-0(6) AGNICO EAGLE MINES LIMITED SILVER DIVISION COBALT REPORT DATE: 31 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | | | | 112.32 | 112.3 | 112.32 | 113.86 | 216.86 | 128.87 | 127.49 | 131.48 | 133.96 | 132.1622 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ARSENIC UNF.TOT. | ACTUAL | 0.041 | 0.027 | 0.042 | 0.029 | 0.081 | 0.039 | 0.034 | 0.09 | 0.044 | 0.071 | 0.034 | 0.007 | 0.044916 | |
| KG /DAY (ASUT ) | GUIDELINE | | | | 0.05616 | 0.05615 | 0.05616 | 0.05693 | 0.10843 | 0.064435 | 0.063745 | 0.06574 | 0.06698 | 0.066081 | 2 |
| CYANIDE FREE | ACTUAL | 0.011 | 0.011 | 0.011 | 0.01 | 0.011 | 0.011 | 0.01 | 0.02 | 0.013 | 0.051 | 0.026 | 0.027 | 0.017666 | |
| KG /DAY (CCNFUR) | GUIDELINE | | | | 0.224639 | 0.2246 | 0.224639 | 0.227719 | 0.433719 | 0.257739 | 0.254979 | 0.262959 | 0.267919 | 0.264323 | 0 |
| COBALT UNF.TOT. | ACTUAL | 0.011 | 0.011 | 0.011 | 0.01 | 0.011 | 0.011 | 0.01 | 0.02 | 0.006 | 0.029 | 0.037 | 0.08 | 0.020583 | |
| KG /DAY (COUT ) | GUIDELINE | | | | 0.11232 | 0.11232 | 0.11232 | 0.11386 | 0.21686 | 0.12887 | 0.12749 | 0.13148 | 0.13396 | 0.132164 | 0 |
| COPPER UNF.TOT. | ACTUAL | 0.011 | 0.011 | 0.011 | | 0.011 | 0.011 | 0.01 | 0.02 | 0.006 | 0.011 | 0.006 | 0.007 | 0.010454 | |
| KG /DAY (CUUT ) | GUIDELINE | | | | | | | | | | | | | | |
| IRON UNF.TOT. | ACTUAL | 0.081 | 0.011 | 0.006 | 0.007 | 0.006 | 0.006 | 0.01 | 0.01 | 0.006 | 0.014 | 0.006 | 0.007 | 0.014166 | |
| KG /DAY (FEUT ) | GUIDELINE | | | | 0.11232 | 0.11232 | 0.11232 | 0.11286 | 0.12686 | 0.12887 | 0.12749 | 0.13148 | 0.13396 | 0.122053 | 0 |
| MERCURY UNF.TOT. | ACTUAL | | 0.011 | 0.011 | | | | 0.00001 | 0.00001 | 0.00001 | 0.0001 | 0.0001 | 0.00001 | 0.00278 | |
| KG /DAY (HGUT ) | GUIDELINE | | | | | | | | | | | | | | |
| NICKEL UNF.TOT. | ACTUAL | 0.011 | 0.011 | 0.011 | 0.01 | 0.011 | 0.011 | 0.01 | 0.02 | 0.006 | 0.011 | 0.014 | 0.067 | 0.016083 | |
| KG /DAY (NIUT ) | GUIDELINE | | | | 0.11232 | 0.11232 | 0.11232 | 0.11286 | 0.12686 | 0.12887 | 0.12749 | 0.13148 | 0.13396 | 0.122053 | 0 |
| PH | ACTUAL | 7.82 | 7.78 | 7.77 | 7.67 | 7.66 | 7.66 | 7.87 | 8.21 | 7.78 | 7.67 | 7.75 | 7.52 | 7.763333 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE TOTAL | ACTUAL | 31.9 | 20 | 38.6 | 5.62 | 22.46 | 25.05 | 96.67 | 61.81 | 36.21 | 137.56 | 91.12 | 212.33 | 64.94416 | |
| KG /DAY (RST ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 57, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: American Standard, Div of Wabco Standard Inc., Cambridge

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Speed River to Grand River
INDIRECT: 159 km to Lake Erie

DESCRIPTION OF ACTIVITY: Sinks, tubs, etc. are fabricated and enamelled.

EFFLUENT QUALITY: Contains heavy metals

EFFLUENT TREATMENT: pH adjustment, precipitation, flocculation and sedimentation 5 days a week, 230 days a year

DISCHARGE TYPE: continuous flow 7 am to 12 pm through a drain

COMMENTS:

Generally in compliance. Three monthly loading exceedances each were reported for iron and suspended solids. Company changed pickling process chemicals during July 1987 which affected raw wastewater and required adjustment of treatment plant flocculant type and dosage. Reported loadings are based on estimated flow rate. Based on readings of effluent flow meter installed in January 1988 (averaging 72% of previously estimated flow), only one monthly exceedance of iron, occurred in 1987. Monthly requirements are based on stream assimilation study.

IMIS NUMBER: 0001470004 SIC CODE: 3041,3042 MOE REGION: West Central DISTRICT: Cambridge

05/30/88

000147-00-0(4) AMERICAN STANDARD DIVISION OF WABCO STANDARD INC CAMBRIDGE REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | 364.6 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 454 | 0 |
| IRON UNF.TOT. | ACTUAL | 0.328 | 0.335 | 0.93 | 0.164 | 0.113 | 0.184 | 0.211 | 0.52 | 0.487 | 0.342 | 0.21 | 0.307 | 0.34425 | |
| KG /DAY (FEUT ) | REQUIREMENT | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 3 |
| NICKEL UNF.TOT. | ACTUAL | 0.024 | 0.026 | 0.171 | 0.04 | 0.193 | 0.062 | 0.04 | 0.19 | 0.015 | 0.009 | 0.022 | 0.024 | 0.068 | |
| KG /DAY (NIUT ) | REQUIREMENT | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0 |
| PH | ACTUAL | 9.05 | 8.8 | 8.75 | 8.95 | 8 | 7.8 | 7.9 | 8.4 | 9.1 | 9.05 | 8.35 | 8.5 | 8.554166 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 3.646 | 3.646 | 5.651 | 3.646 | 3.646 | 4.375 | 6.93 | 5.47 | 7.748 | 7.847 | 6.563 | 6.24 | 5.450666 | |
| KG /DAY (RSP ) | REQUIREMENT | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 3 |
| ZINC UNF.TOT. | ACTUAL | 0.009 | 0.007 | 0.015 | 0.015 | 0.022 | 0.007 | 0.029 | 0.01 | 0.016 | 0.01 | 0.007 | 0.011 | 0.013166 | |
| KG /DAY (ZNUT ) | REQUIREMENT | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Atlas Steel Company, Welland

INDUSTRIAL SECTOR: Iron and Steel

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Secondary steel industry; recycle scrap metal for melting in electric furnace. Various grades of stainless steel made.Not an integrated mill.No coking operations or blast furnaces.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Contact and non-contact cooling water treated at two filtration plants. Pickling acids and rinses treated at waste acid solidification plant. Tertiary treatment consists of pH adjustment and heavy metal (chrome, lead) removal and filtration.

DISCHARGE TYPE: continuous

COMMENTS:

Company has undertaken and will comply with all items proposed in draft Section 17 Order by November 1988. Company is not in compliance with suspended solids in 1987. Wastewater recycling and treatment will reduce suspended solids concentration in 1988. Compliance expected in 1988.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001610005 SIC CODE: 291 MOE REGION: West Central DISTRICT: Welland

09/12/88

000161-00-0(5) ATLAS STEEL COMPANY LIMITED WELLAND REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 28100 | 27200 | 25900 | 22900 | 33300 | 35300 | 31500 | 30000 | 31300 | 26500 | 37900 | 39100 | 30750 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 421.5 | 408 | | 343.5 | 499.5 | 529.5 | 472.5 | 450 | 469.5 | 397.5 | 568.5 | 586.5 | 489.25 | 0 |
| CADMIUM UNF.TOT. | ACTUAL | 0.0652 | 0.0544 | 0.0518 | 0.0458 | 0.0666 | 0.1765 | 0.0139 | 0 | 0.0648 | 0.058 | 0.0379 | 0.0782 | 0.059425 | |
| KG /DAY (CDUT ) | REQUIREMENT | 0.0281 | 0.0272 | 0.0259 | 0.0229 | 0.0333 | 0.0353 | 0.0315 | 0.03 | 0.0313 | 0.265 | 0.0379 | 0.0391 | 0.050625 | 8 |
| CHROMIUM UNF.TOT. | ACTUAL | 2.248 | 1.36 | 8.029 | 3.435 | 1.332 | 2.824 | 0.2084 | 0 | 0.648 | 0.87 | 0.758 | 2.737 | 2.03745 | |
| KG /DAY (CRUT ) | REQUIREMENT | 28.1 | 27.2 | 25.9 | 22.9 | 33.3 | 35.3 | 31.5 | 30 | 31.3 | 26.5 | 37.9 | 39.1 | 30.75 | 0 |
| IRON UNF.TOT. | ACTUAL | 30.91 | 38.08 | 212.38 | 176.33 | 43.29 | 28.946 | 3.543 | 0 | 16.848 | 34.8 | 72.01 | 109.48 | 63.88475 | |
| KG /DAY (FEUT ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8 | 7.7 | 7.4 | 8.1 | 8.1 | 8.08 | 7.73 | 0 | 7.93 | 7.61 | 7.84 | 9.73 | 7.351666 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.1405 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.011708 | |
| KG /DAY (PHNOL ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| KG /DAY (PPUT ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 109.6 | 272 | 621.6 | 659.52 | 326.34 | 197.68 | 34 | 0 | 187.9 | 81.2 | 765.58 | 469.2 | 310.385 | |
| KG /DAY (RSP ) | REQUIREMENT | 421.5 | 408 | 388.5 | 343.5 | 499.5 | 529.5 | 472.5 | 450 | 469.5 | 397.5 | 568.5 | 586.5 | 461.25 | 3 |
| SOLVENT EXTRACT. | ACTUAL | 28.1 | 0 | 0 | 0 | 0 | 0 | 40.3 | 0 | 32.5 | 29 | 41.69 | 46.92 | 18.20916 | |
| KG /DAY (SOLEXT) | REQUIREMENT | 421.5 | 408 | 388.5 | 343.5 | 499.5 | 529.5 | 472.5 | 450 | 469.5 | 397.5 | 568.5 | 586.5 | 461.25 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 TIMES OUT OF 71, FOR A TOTAL COMPLIANCE RECORD OF 85% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Bakelite Thermosets Ltd. Belleville

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: Bay of Quinte
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Formaldehyde and hexamethylene tetramine produced on site are used to make phenol and formaldehyde resins.

EFFLUENT QUALITY: Contains soluble and insoluble organics such as phenols.

EFFLUENT TREATMENT: None

DISCHARGE TYPE: Continuous

COMMENTS:

Discharge consists of cooling water and surface runoff. The accuracy of historical flow measurement and sampling procedure is suspect. More accurate flow measurement equipment installed for MISA pre-regulation monitoring. Environmental Protection Act Section 126 Provincial Officer's Report being prepared during 1988.

IMIS NO.: 0001860006 SIC CODE(S): 3731 MOE REGION: Southeast DISTRICT: Kingston

09/01/88

000186-00-0(6) BAKELITE THERMOSETS LTD. BELLEVILLE REPORT DATE: 14 JUN 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 9318.78 | 9318.09 | 9316 | 9500 | 10500 | 2050 | 11000 | 9500 | 13334 | 12493 | 11704 | 11899 | 9994.405 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.33 | 0.3 | 1.03 | 0.5 | 0.18 | 0.05 | 0.14 | 0.09 | 0.2 | 0.15 | 0.14 | 0.33 | 0.3 | |
| KG/DAY (PHNOL) | GUIDELINE | 0.186375 | 0.186361 | 0.18632 | 0.19 | 0.21 | 0.041 | 0.22 | 0.19 | 0.26668 | 0.24986 | 0.23408 | 0.23798 | 0.199888 | 6 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Beaver Wood Fibre Company
& PLANT LOCATION: Thorold

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Beaverdams Creek to Twelve Mile Creek
INDIRECT: 13.3 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Paperboard is made from pulp and clean wastepaper.

EFFLUENT QUALITY: contains suspended solids

EFFLUENT TREATMENT: Primary clarifier on total mill effluent removes solids. Spills of broke (pulp in water) and rejects from pulp cleaning are either recycled or sent to landfill. Sludge handling and mill effluent pumping systems were duplicated to minimize clarifier bypassing.

DISCHARGE TYPE: continuous through a submerged outfall

COMMENTS:

Target loads set by Pulp and Paper Committee consistent with best practicable technology. Section 126 EPA survey completed; technical review by company's consultant was completed June/88. Review by MISA and Order to be drafted Fall 1988. Order will address BOD5 and RSP.

The mill's final treated effluent normally does not kill fish. Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001620004 SIC CODE: 271 MOE REGION: West Central DISTRICT: Welland

09/14/88

000162-00-0(4) BEAVER WOOD FIBRE COMPANY LTD. THOROLD REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 14750 | 8690 | 15540 | 16650 | 16250 | 16250 | 17010 | 17010 | 16.6 | 16200 | 14700 | 14400 | 13955.55 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 2168 | 2528 | 1968 | 2381 | 2292 | 2746 | 1768 | 1921 | 1560 | 1780 | 1352 | 1325 | 1982.416 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2 |

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDUE FILTERED | ACTUAL | 2360 | 2844 | 2945 | 3330 | 3412 | 2600 | 3400 | 2550 | 2905 | 3240 | 2572 | 2520 | 2889.833 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 2257 | 3002 | 930 | 916 | 731 | 894 | 680 | 680 | 830 | 760 | 808 | 605 | 1091.083 | |
| KG /DAY (RSP ) | REQUIREMENT | 904 | 904 | 904 | 904 | 904 | 904 | 904 | 904 | 904 | 904 | 904 | 904 | 904 | 4 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: B. F. Goodrich
& PLANT LOCATION: Niagara Falls

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Polyvinyl chloride resins are made from purchased vinyl chloride monomer.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Conventional secondary sewage treatment plant followed by aerated lagoon followed by facultative lagoon. Wastewater from one plant is treated by an aeration pond and polishing lagoon. From another plant, wastewaters are equalized, neutralized and treated by an activated sludge process before discharge to the aeration pond.

DISCHARGE TYPE: continuous through an open outfall

COMMENTS:

Modification to A/S system for shock loading completed in 1986; Section 24 OWRA submitted, company is not in compliance in 1987 for BOD5 and suspended solids. Wastewater treatment process upsets account for one monthly exceedance for BOD5 and the three suspended solids exceedances. Company to be in compliance in 1988 upon installation of further treatment system.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000370304 SIC CODE: 3731 MOE REGION: West Central DISTRICT: Welland

09/14/88

000037-03-0(4) B.F.GOODRICH NIAGARA FALLS REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2265 | 2435 | 1933 | 2202 | 1808 | 2442 | 2749 | 2504 | 2004.32 | 2171.55 | 2593 | 2835.23 | 2328.508 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 25.6 | 35.83 | 13.67 | 33.03 | 27.12 | 25.97 | 13.89 | 20.1 | 23.33 | 19.28 | 58.72 | 26.75 | 26.94083 | |
| KG /DAY (BOD5 ) | GUIDELINE | 33.975 | 36 | 28.995 | 33.03 | 27.12 | 36.6 | 41.24 | 37.56 | 30.0648 | 32.5732 | 38.895 | 42.5284 | 34.88178 | 1 |
| NH4-N FIL.REAC | ACTUAL | 0.08 | 1.08 | 1.61 | 1.22 | 1.26 | 1.63 | 3 | 0.5 | 1.05 | 0.46 | 2.32 | 0.226 | 1.203 | |
| KG /DAY (NNH4FR) | GUIDELINE | 22.65 | 24.4 | 19.33 | 22.02 | 18 | 24.4 | 27.49 | 25.04 | 20.0432 | 21.7155 | 25.93 | 28.35 | 23.28072 | 0 |
| PH | ACTUAL | 6.5 | 6.8 | 6.6 | 6.6 | 6.9 | 7 | 7.2 | 7.2 | 7 | 6.8 | 6.6 | 6.6 | 6.816666 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0 | 0.46 | 0.05 | 0 | 0.33 | 0.15 | 0.64 | 0.34 | 0.3 | 0.37 | 1.04 | 0 | 0.306666 | |
| KG /DAY (PPUT ) | GUIDELINE | 2.265 | 2.43 | 1.933 | 2.202 | 1.8 | 2.44 | 2.74 | 2.5 | 2.00432 | 2.17155 | 2.593 | 2.83523 | 2.326175 | 0 |
| RESIDUE PARTIC. | ACTUAL | 5.91 | 19.33 | 0 | 1.04 | 42.18 | 35.76 | 6.33 | 11.4 | 32.14 | 13.46 | 37.56 | 35.81 | 20.07666 | |
| KG /DAY (RSP ) | GUIDELINE | 33.975 | 36 | 28.995 | 33.03 | 27.12 | 36.6 | 41.24 | 37.56 | 30.0648 | 32.5732 | 38.895 | 42.5284 | 34.88178 | 2 |
| RESIDUE TOTAL | ACTUAL | 2945.32 | 850.2 | 484.9 | 465.74 | 648.69 | 672.21 | 572.81 | 784.37 | 726.71 | 601.1 | 875.88 | 994080 | 83642.32 | |
| KG /DAY (RST ) | GUIDELINE | | | | | | | | | | | | | | |
| VINYL CHLORIDE | ACTUAL | 0 | 0.2 | 0.06 | 0.04 | 0.15 | 0.12 | 0.06 | 0.07 | 0.06 | 0.09 | 0.18 | 0.15 | 0.098333 | |
| KG /DAY (X1VCL ) | GUIDELINE | 2.265 | 2.43 | 1.933 | 2.202 | 1.8 | 2.44 | 2.74 | 2.5 | 2.00432 | 2.17155 | 2.593 | 2.83523 | 2.326175 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Blackstone Industrial Products. Ltd. Stratford

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Avon River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufacture of automotive radiators and heater cores.

EFFLUENT QUALITY: Contains dissolved metals including copper, zinc and nickel.

EFFLUENT TREATMENT:

DISCHARGE TYPE: Batch

COMMENTS:

Abatement staff will conduct audit program at Blackstone Industrial Products to ensure future compliance with effluent quality requirements.

IMIS NO.: 0001850007 SIC CODE: 325 MOE REGION: Southwest DISTRICT: London

09/17/88

000185-00-0(7) BLACKSTONE INDUSTRIAL PRODUCTS LTD STRATFORD REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 759 | 750 | 766 | 780 | 780 | 846 | 602 | 947 | 964 | 942 | 1023 | 1046 | 850.4166 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHROMIUM UNF.TOT. | ACTUAL | 0.08 | 0.11 | 0.08 | 0.1 | 0.05 | 0.08 | 0.03 | 0.14 | 0.1 | 0.09 | 0.13 | 0.05 | 0.086666 | |
| KG /DAY (CRUT ) | GUIDELINE | 0.759 | 0.75 | 0.766 | 0.78 | 0.78 | 0.846 | 0.602 | 0.947 | 0.964 | 0.942 | 1.02 | 1.046 | 0.850166 | 0 |
| COPPER UNF.TOT. | ACTUAL | 0.14 | 0.18 | 0.23 | 0.26 | 0.23 | 0.33 | 0.2 | 0.75 | 0.34 | 0.24 | 0.56 | 0.21 | 0.305833 | |
| KG /DAY (CUUT ) | GUIDELINE | 0.759 | 0.75 | 0.766 | 0.78 | 0.78 | 0.846 | 0.602 | 0.947 | 0.964 | 0.942 | 1.02 | 1.046 | 0.850166 | 0 |
| LEAD UNF.TOT. | ACTUAL | 0.1 | 0.12 | 0.12 | 0.08 | 0.06 | 0.12 | 0.08 | 0.24 | 0.17 | 0.13 | 0.51 | 2.06 | 0.315833 | |
| KG /DAY (PBUT ) | REQUIREMENT | 0.759 | 0.75 | 0.766 | 0.78 | 0.78 | 0.846 | 0.602 | 0.947 | 0.964 | 0.942 | 1.02 | 1.046 | 0.850166 | 1 |
| PH | ACTUAL | 7.9 | 8.2 | 8.3 | 8.1 | 8.4 | 8 | 8.2 | 8.2 | 8.5 | 8 | 8.2 | 8.3 | 8.19 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 2.66 | 1.04 | 2.21 | 2.18 | 2.71 | 12 | 0.24 | 15.49 | 38.01 | 4.88 | 9.99 | 6.92 | 8.194166 | |
| KG /DAY (RSP ) | GUIDELINE | 11.38 | 11.75 | 11.49 | 11.7 | 11.7 | 12.69 | 9.03 | 14.2 | 14.46 | 14.13 | 15.35 | 15.69 | 48.94684 | 2 |
| ZINC UNF.TOT. | ACTUAL | 0.26 | 0.37 | 0.41 | 0.74 | 0.34 | 0.6 | 0.21 | 1.46 | 0.52 | 0.64 | 1.05 | 0.59 | 0.599166 | |
| KG /DAY (ZNUT ) | GUIDELINE | 0.759 | 0.75 | 0.766 | 0.78 | 0.78 | 0.846 | 0.602 | 0.947 | 0.964 | 0.942 | 1.02 | 1.046 | 3.263124 | 2 |

NOTE: PH LIMIT 6.5-8.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Boise Cascade Canada Ltd.
& PLANT LOCATION: Fort Frances

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Rainy R.
INDIRECT: Winnipeg River

DESCRIPTION OF ACTIVITY: Mainly softwood (black spruce, jack pine and balsam fir) logs and chips are converted into bleached kraft pulp and groundwood paper specialties. Crude tall oil is also produced.

EFFLUENT QUALITY: Contains suspended solids (bark, wood, paper) and trace amounts of organics including chlorinated compounds

EFFLUENT TREATMENT: The kraft woodroom (debarking) is dry; groundwood effluent is treated by screen and clarifier to remove solids. Solids from the groundwood paper machine are removed by a disc filter, a saveall screen and a clarifier. After the total mill effluent is treated biologically (aerated lagoon), the solids are removed by a quiescent basin.

DISCHARGE TYPE: Continuous through a diffuser.

COMMENTS:

Suspended solids requirement does not include assumed biological solids. Control order expired June 1984. $BOD_5$ (15,000 kg/day) and Suspended Solids (7,500 kg/day) limits are 30 day running averages.

Three trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50% of the fish by the end of four days exposure ranged from 13.0% to 80.6%. Data reported from the company indicate a reduction in effluent toxicity.

IMIS NO.: 0000870105 SIC CODE: 271 MOE REGION: Northwest DISTRICT: Kenora

08/25/88

000087-01-0(5) BOISE CASCADE CANADA LTD. FORT FRANCES FORT FRANCES REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 70500 | 69400 | 71200 | 72000 | 73500 | 75600 | 77600 | 80500 | 72200 | 79600 | 72200 | 71100 | 73783.33 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 10400 | 10300 | 12500 | 9200 | 9600 | 10300 | 8600 | 9300 | 7300 | 10100 | 9100 | 8900 | 9633.333 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 15000 | 15000 | 15000 | 15000 | 13000 | 13000 | 13000 | 13000 | 13000 | 13000 | 15000 | 15000 | 14000 | 0 |
| RESIDUE PARTIC. | ACTUAL | 4400 | 5000 | 4100 | 4700 | 3900 | 4800 | 3800 | 4300 | 5500 | 5800 | 3900 | 4200 | 4533.333 | |
| KG /DAY (RSP ) | REQUIREMENT | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 7500 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Boise Cascade Canada Ltd. Kenora

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Winnipeg R.
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood (jack pine, black spruce) logs are made into newsprint through sulphite and stone groundwood pulping.

EFFLUENT QUALITY: Contains suspended solids (bark, paper, wood) and a variety of organic compounds.

EFFLUENT TREATMENT: A large clarifier removes solids from the paper machine room and sulphite high-solids wastewaters. Two large screens remove solids from low-solids wastewaters at the paper machines, sulphite blow pit washings and stone groundwood bearing water.

DISCHARGE TYPE: Continuous through a diffuser.

COMMENTS:

Control order expires Dec. 31, 1988. $BOD_5$ (35,000 kg/day) and Suspended Solids (4,500 kg/day) limits are 30 day running averages.

This mill's discharge is highly toxic to fish. Five bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 1.7% to 5.9%.

IMIS NO.: 0000870006 SIC CODE: 271 MOE REGION: Northwest DISTRICT: Kenora

06/29/88

000087-00-0(6) BOISE CASCADE CANADA LTD. KENORA KENORA REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 44258 | 45566 | 45216 | 45850 | 49000 | 51800 | 55600 | 55000 | 52000 | 49050 | 46255 | 44425 | 48668.33 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 18700 | 22300 | 22100 | 22800 | 22700 | 21400 | 24600 | 23700 | 23400 | 24000 | 24800 | 25300 | 22983.33 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 35000 | 0 |
| RESIDUE PARTIC. | ACTUAL | 3540 | 3480 | 3300 | 3360 | 3260 | 3100 | 3240 | 3000 | 3490 | 3550 | 3600 | 3720 | 3386.666 | |
| KG /DAY (RSP ) | REQUIREMENT | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 4500 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Borg-Warner Chemicals Cobourg

INDUSTRIAL SECTOR: Organic Chemicals and Synthetic Fibres

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Formulation of ABS resins (plastics).

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Primary and secondary - extended aeration.

DISCHARGE TYPE: continuous through a submerged diffuser

COMMENTS:

Abatement program submitted by Borg-Warner to improve plant operation to comply to effluent limits.

IMIS NO.: 0000600007 SIC CODE: 3731 MOE REGION: Central DISTRICT: Peterborough

08/26/88

000060-00-0(7) BORG-WARNER CHEMICALS COBOURG REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1796 | 2045.7 | 1877.5 | 2600.3 | 1959.4 | 2468.57 | 2132.57 | 1686.57 | 2391.19 | 2141.16 | 1945.68 | 1927.54 | 2080.94 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 26.9 | 16.36 | 4.26 | 27.8 | 31.3 | 24.4 | 30.4 | 25.1 | 32.99 | 10.49 | 25.85 | 23.3 | 23.4 | |
| KG /DAY (BOD5 ) | GUIDELINE | 53.9 | 170 | 56.3 | 78 | 58.8 | 74.1 | 64 | 50.6 | 71.7 | 64.2 | 58.4 | 57.8 | 71.5 | 0 |
| CHEM. OX DEMAND | ACTUAL | 205 | 100.23 | 80.73 | 130 | 155 | 202 | 119.39 | 217.5 | 138.68 | 55.67 | 151.76 | 154 | 143 | |
| KG /DAY (COD ) | REQUIREMENT | 251 | 793 | 263 | 364 | 274 | 346 | 298 | 236 | 335 | 300 | 272 | 270 | 334 | 0 |
| K'DAHL N TOTAL | ACTUAL | 7.11 | 7.1 | 8.6 | 8.47 | 12.5 | 34.8 | 20.8 | 13.6 | 40.6 | 15 | 38.9 | 18.7 | 19.8 | |
| KG /DAY (NNTKUR) | REQUIREMENT | 89.8 | 283 | 93.9 | 130 | 98 | 123 | 107 | 84.3 | 120 | 107 | 97.3 | 96.4 | 119 | 0 |
| PH | ACTUAL | | | | | | | | | | | | | | |
| (PH) | GUIDELINE | 7.3 | 7.5 | 7.2 | 7.5 | 7.3 | 7.3 | 7.1 | 7.2 | 7.2 | 7.4 | 7.3 | 7.2 | 7.29 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 4.49 | 1 | 1.8 | 1.56 | 1.47 | 2.69 | 5.54 | 5.39 | 0.78 | 0.66 | 1.13 | 1.29 | 2.32 | |
| KG /DAY (PPUT ) | REQUIREMENT | 1.8 | 5.67 | 1.88 | 2.6 | 1.96 | 2.47 | 2.13 | 1.69 | 2.39 | 2.14 | 1.95 | 1.93 | 2.38 | 4 |
| RESIDUE PARTIC. | ACTUAL | 34.1 | 53.18 | 11.26 | 26 | 106 | 188 | 155.6 | 163.5 | 100.42 | 32.11 | 122.57 | 158 | 95.9 | |
| KG /DAY (RSP ) | REQUIREMENT | 53.9 | 170 | 56.3 | 78 | 58.8 | 74.1 | 64 | 50.6 | 71.7 | 64.2 | 58.4 | 57.8 | 71.5 | 7 |

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 85% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Campbell Soup Co. Ltd.
& PLANT LOCATION: P.O. Box St. Marys

INDUSTRIAL SECTOR: Food and beverage

RECEIVING WATERBODY: DIRECT: 248 km from Thames R. North Branch
INDIRECT:

DESCRIPTION OF ACTIVITY: Poultry and small game dressing

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Diffused outfall to river sludge irrigation on company land

DISCHARGE TYPE: Continuous

COMMENTS:

Work commenced on upgrading the sewage works on July 1988 and the upgraded plant should be operational by October 1988.

IMIS NO.:0000970004 SIC CODE: 101 MOE REGION: Southwest DISTRICT: London

09/17/88

000097-00-0(4) CAMPBELL SOUP COMPANY LTD PO BOX 1180 ST MARYS REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2872 | 3168.62 | 2882.22 | 2809.48 | 2882.22 | 2727.65 | 2727.65 | 2727.6 | 2827.6 | 2945.8 | 2627.6 | 3595 | 2899.453 | |
| M3 /DAY (FTFLOW) | GUIDELINE | 3330 | 3330 | 3330 | 3330 | 3330 | 3330 | 3330 | 3330 | 3330 | 3330 | 3330 | 3330 | 3330 | 1 |
| BOD 5 DAY | ACTUAL | 37 | 49 | 65 | 58 | 55 | 80 | 74 | 83 | 91 | 86 | 36 | 73 | 65.58333 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 9 |
| PH | ACTUAL | 7.4 | 7.8 | 7.4 | 7.4 | 7.2 | 7.8 | 8 | 8 | 8 | 8.1 | 8 | 7.3 | 7.7 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| PO4 FIL.REAC | ACTUAL | 2.2 | 2 | 2.7 | 3.5 | 3.8 | 4.3 | 3.2 | 2.8 | 2.2 | 2 | 1.5 | 1.4 | 2.633333 | |
| KG /DAY (PPO4FR) | GUIDELINE | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3 |
| RESIDUE PARTIC. | ACTUAL | 1005 | 112 | 135 | 190 | 141 | 60 | 228 | 124 | 242 | 90 | 42 | 121 | 207.5 | |
| KG /DAY (RSP ) | REQUIREMENT | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 11 |
| RESIDUE TOTAL | ACTUAL | 2135 | 1815 | 1639 | 1502 | 1463 | 1306 | 1741 | 1374 | 1701 | 1392 | 1580 | 1401 | 1587 | |
| KG /DAY (RST ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 6.5-8.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 24 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 60% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Canadian Canners Ltd.
& PLANT LOCATION: St. Davids

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Four Mile Creek
INDIRECT: 12 km to Lake Ontario

DESCRIPTION OF ACTIVITY:

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Facultative lagoon.

DISCHARGE TYPE: batch discharge usually in fall of year

COMMENTS:

In compliance. Lagoon is seasonally discharged.

IMIS NUMBER: 0001930007 SIC CODE: 102 MOE REGION: West Central DISTRICT: Welland

09/14/88

000193-00-0(7) CANADIAN CANNERS LTD. ST. DAVIDS REPORT DATE: 16 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 26200 | 26200 | 0 | 0 | 0 | 0 | | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 251.5 | 251.5 | 0 | 0 | 0 | 0 | | |
| KG /DAY (BOD5 ) | GUIDELINE | | | | | | | 393 | 393 | | | | | | 0 |
| PHOSPHOR UNF. TOT. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 26.2 | 26.2 | 0 | 0 | 0 | 0 | | |
| KG /DAY (PPUT ) | GUIDELINE | | | | | | | 26.2 | 26.2 | | | | | | 0 |
| RESIDUE PARTIC. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 207 | 207 | 0 | 0 | 0 | 0 | | |
| KG /DAY (RSP ) | GUIDELINE | | | | | | | 393 | 393 | | | | | | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 6, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Canadian Oxy-Durez
Dunlop
Fort Erie

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures phenol-formaldehyde type resins.

EFFLUENT QUALITY: Recycles waste water; cooling water discharge only.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through an open outfall

COMMENTS:

Company will complete abatement program in 1988. Program consists of wastewater treatment, wastewater recirculation, storm water retention system. Company is not in compliance with phenol loading guideline. Compliance expected in 1989.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001590009 SIC CODE: 3781 MOE REGION: West Central DISTRICT: Welland

07/19/88

000159-00-0(9) CANADIAN OXY-DUREZ FORT ERIE REPORT DATE: 13 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 213.6 | 198 | 152.2 | 330 | 369.9 | 408 | 438 | 403.1 | 460.75 | 415.2 | 306.4 | 16 | 309.2625 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 0.75 | 0.396 | 0.38 | 0.726 | 0.7 | 0.694 | 0.44 | 0.349 | 1 | 0.133 | 0.37 | 0.12 | 0.504833 | |
| KG /DAY (BOD5 ) | GUIDELINE | 3.204 | 2.97 | 2.283 | 4.95 | 5.5485 | 6.12 | 6.57 | 6.05 | 6.91125 | 6.228 | 4.596 | 0.24 | 4.639229 | 0 |
| PHENOLS UNF-REAC | ACTUAL | 0.0123 | 0.017 | 0.017 | 0.0198 | 0.033 | 0.058 | 0.028 | 0.0126 | 0.036 | 0.0469 | 0.00832 | 0.0002 | 0.024093 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.004272 | 0.00396 | 0.003044 | 0.0066 | 0.007398 | 0.00816 | 0.00876 | 0.0081 | 0.009215 | 0.008304 | 0.00612 | 0.0003 | 0.006186 | 10 |
| PHOSPHOR UNF.TOT. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| KG /DAY (PPUT ) | GUIDELINE | 0.2136 | 0.198 | 0.1522 | 0.33 | 0.3699 | 0.408 | 0.438 | 0.403 | 0.46075 | 0.4152 | 0.306 | 0.016 | 0.309220 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 72% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: CASCO Company
& PLANT LOCATION: (previously reported as -
The Canada Starch Co. Ltd.)
800 James Street
Cardinal

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Wet milling & oil refining processes

EFFLUENT QUALITY: Contains soluble organics, insoluble organics and phosphorus.

EFFLUENT TREATMENT: Aerated cell.

DISCHARGE TYPE: Continuous

COMMENTS:

Requirement and Direction served on February 24, 1987 with requirements of 25 mg/L for BOD5 and Suspended Solids, and 1 mg/L for phosphorus commencing on January 01, 1989. A new anaeroboc treatment system is being installed along with new outfalls (control points). BOD5 concentrations are determined by analyzing for COD and applying a conversion factor.

IMIS NUMBER: 0001720002 SIC CODES: 106, 1083, 1089 MOE REGION: Southeast DISTRICT: Kingston

09/01/88

000172-00-0(2) CASCO INC. CARDINAL REPORT DATE: 14 JUN 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/005/ ST. LAWRENCE R.

INCLUDES CONTROL POINTS: 0100 0200 0301 0302

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 19000 | 18900 | 20500 | 20600 | 22000 | 23300 | 24000 | 19200 | 24900 | 23860 | 26600 | 24500 | 22280 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHEM. OX DEMAND | ACTUAL | 7327 | 4756 | 5195 | 6463 | 4225 | 7063 | 4342 | 4347 | 3661 | 4185 | 10081 | 4887 | 5544.333 | 0 |
| KG /DAY (CODF ) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 16.5 | | | 37.3 | 56.3 | 30.45 | 29.7 | 36.6 | 31.1 | 37.6 | 54.7 | 36.7 | 36.695 | 0 |
| KG /DAY (PPUT ) | GUIDELINE | S/C | | | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |
| RESIDUE PARTIC. | ACTUAL | 2096 | 1410 | 2101 | 2103 | 1782 | 1544 | 1414 | 1484 | 1727 | 1888 | 2894 | 2180 | 1885.25 | 0 |
| KG /DAY (RSP ) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |

NOTE: PH LIMIT 5.5-9.5. 0* INDICATES INTAKE EXCEEDED DISCHARGE. S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 34, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Celanese Canada Ltd.
& PLANT LOCATION: Ernestown Twp.

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Textiles are made from polyester fibre produced by the reaction of ethylene glycol and terephthalic acid

EFFLUENT QUALITY: Effluent objectives for process and sanitary wastewater treatment plant set out in Certificate of Approval # 4-006-86-006 dated June 16, 1986 for BOD at 30 mg/L (loading 136 kg/day) and COD at 60 mg/L (272 kg/day).

EFFLUENT TREATMENT: Secondary activated sludge for process and sanitary wastewater.

DISCHARGE TYPE: Continuous

COMMENTS:

Reported data (control point 0100) is for Centre Outfall which carries cooling water, surface drainage and effluent from wastewater treatment plant. Water quality based total COD loading to Lake Ontario is limited to 1200 lbs (544 kg) per day as established in November 1975 Requirement and Direction. Wastewater treatment plant effluent quality data to be included in future Discharge Summary reports. Wastewater effluent quality data shows plant not to be in compliance January and February 1987; attributed to treatment plant startup acclimatization.

IMIS NUMBER: 0001730001 SIC CODE:1811 MOE REGION: Southeast DISTRICT: Kingston

09/01/88

000173-00-0(1) CELANESE CANADA (MILLHAVEN) INC TWP OF ERNESTOWN REPORT DATE: 14 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 8871 | 8500 | 8793 | 9502 | 14024 | 17725 | 22116 | 18343 | 19222 | 16172 | 8166 | 7148 | 13215.16 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 97 | 93 | 176 | 129 | 113 | 96 | 190 | 323 | 192 | 87 | 97 | 95 | 140.6666 | |
| KG /DAY (BOD5 ) | GUIDELINE | 272 | 272 | 272 | 272 | 272 | 272 | 272 | 272 | 272 | 272 | 272 | 272 | 272 | 1 |
| CHEM. OX DEMAND | ACTUAL | 186 | 187 | 342 | 258 | 226 | 192 | 379 | 289 | 365 | 174 | 194 | 190 | 200.33 | |
| KG /DAY (COD ) | REQUIREMENT | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 544 | 0 |
| RESIDUE PARTIC. | ACTUAL | 53 | 42 | 96 | 93 | 36 | 39 | 44 | 165 | 58 | 32 | 28 | 25 | 59.25 | |
| KG /DAY (RSP ) | GUIDELINE | 221.775 | 212.5 | 219.825 | 237.55 | 350.6 | 443.125 | 552.9 | 458.575 | 480.55 | 404.3 | 204.15 | 178.7 | 330.3791 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Champlain Industries Ltd. Tara

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Sauble R.
INDIRECT:

DESCRIPTION OF ACTIVITY: Whey is made into whey based products.

EFFLUENT QUALITY: Contains organic compounds such as proteins.

EFFLUENT TREATMENT: Secondary. Oxidation ditch clarifier sludge irrigated onto company land

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance.

IMIS NO.: 0001000108 SIC CODE: 104 MOE REGION: Southwest DISTRICT: Owen Sound

06/16/88

000100-01-0(8) CHAMPLAIN INDUSTRIES LIMITED TARA REPORT DATE: 01 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 46 | 56 | 51 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | 55 | | 53.90909 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | 182 | | 182 | 0 |
| BOD 5 DAY | ACTUAL | 0.13 | 0.16 | 0.33 | 0.11 | 0.33 | 0.11 | 0.66 | 0.66 | 0.49 | 0.05 | 0.38 | | 0.31 | |
| KG /DAY (BOD5 ) | GUIDELINE | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | | 2.73 | 0 |
| NH3-N TOTAL | ACTUAL | 0.04 | 0.05 | 1.68 | 0.44 | 0.3 | 0.47 | 0.07 | 0.08 | 0.05 | 0.06 | 0.04 | | 0.298181 | |
| KG /DAY (NNHTFR) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8.38 | 7.76 | 7.71 | 7.66 | 7.6 | 7.71 | 7.5 | 7.6 | 8.07 | 7.8 | 7.75 | | 7.776363 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PO4 FIL.REAC | ACTUAL | 0.06 | 0.2 | 0.33 | 0.36 | 0.45 | 0.37 | 0.43 | 0.42 | 0.25 | 0.19 | 0.52 | | 0.325454 | |
| KG /DAY (PPO4FR) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 0.56 | 0.49 | 0.75 | 0.55 | 0.88 | 0.48 | 1.1 | 0.85 | 0.62 | 0.9 | 0.42 | | 0.690909 | |
| KG /DAY (RSP ) | GUIDELINE | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | 2.73 | | 2.73 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 44, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Chesapeake and Ohio Railway Co.

INDUSTRIAL SECTOR: Wholesale and retail trade

& PLANT LOCATION: Northern Reg.
St. Thomas

RECEIVING WATERBODY: DIRECT: Kettle Cr.
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Two oil separation lagoons

DISCHARGE TYPE: Batch

COMMENTS:

Only two discharges during 1987. Plant no longer in operation. Site decommissioning program is being monitored by the MOE.

IMIS NO.: 0001010008 SIC CODE: 503 MOE REGION: Southwest DISTRICT: London

05/30/88

000101-00-0(8) CHESAPEAKE AND OHIO RAILWAY CO NORTHERN REGION ST THOMAS REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SOLVENT EXTRACT. | ACTUAL | | | | 0.3 | | 3.2 | | | | | | | 1.75 | |
| MG/L (SOLEXT) | REQUIREMENT | | | | 15 | | 15 | | | | | | | 15 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 2, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: CIL Ltd.
& PLANT LOCATION: Cornwall

INDUSTRIAL SECTOR: Inorganic Chemicals

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: The mercury cell process is used to produce caustic and chlorine gas from salt

EFFLUENT QUALITY: Contains low levels of suspended and dissolved solids.

EFFLUENT TREATMENT: All mercury-contaminated streams are collected and subjected to an efficient physical and chemical treatment to remove mercury before discharge.

DISCHARGE TYPE: Continuous through a submerged diffuser shared with Domtar.

COMMENTS:

In compliance. Easily meets Federal Fisheries Act regulations governing the amount of mercury discharged from mercury-cell chlor-alkali plants.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000390401 SIC CODE: 3712 MOE REGION: Southeast DISTRICT: Cornwall

07/05/88

000039-04-0(1) CIL INC CORNWALL REPORT DATE: 26 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2763 | 2795 | 3000 | 2841 | 2923 | 3101 | 3184 | 2721 | 3727 | 3917 | 3683 | 3317 | 3164 | |
| M3 /DAY (FTFLOW) | GUIDELINE | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 4000 | 0 |
| MERCURY UNF.TOT. | ACTUAL | 0.0396 | 0.0251 | 0.0346 | 0.0249 | 0.0283 | 0.0334 | 0.0422 | 0.0317 | 0.0612 | 0.0239 | 0.0298 | 0.0195 | 0.032 | |
| KG /DAY (HGUT ) | GUIDELINE | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0.28 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: CIL Ltd.
& PLANT LOCATION: Lambton Works
Courtright

INDUSTRIAL SECTOR: Inorganic Chemicals

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Sulphuric acid, phosphate ore and nitrogen are converted into several grades of fertilizer.

EFFLUENT QUALITY: Contains dissolved inorganic compounds such as phosphorus and ammonia

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous at shore

COMMENTS:

In compliance. CIL Ltd. is under a Director's Order to maintain Dinitrotoluene levels below 9 kg/day until October 31,1988 when this waste stream is stopped.

IMIS NUMBER: 0000390203 SIC CODE: 372 MOE REGION: Southwest DISTRICT: Sarnia

08/31/88

000039-02-0(3) CANADIAN INDUSTRIES LTD INC AGRICULTURAL CHEMICALS COURTRIGHT

REPORT DATE: 30 AUG 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 172606 | 172751 | 220558 | 263673 | 350049 | 350049 | 383926 | 336120 | 350049 | 350049 | 347171 | 350049 | 303920.8 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| DINITROTOLUENE | ACTUAL | 6.47 | 5.83 | 6.7 | 3.63 | 5.46 | 2.23 | 2.21 | 0.51 | 0.59 | 1.68 | | | 3.531 | |
| KG/DAY (B2TOLU) | GUIDELINE | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | | | 9 | 0 |
| FLUORIDE UNF.TOT. | ACTUAL | 36.8 | 39.5 | 33.4 | 162.6 | 80.2 | 82.8 | 111.5 | 87.8 | 82.8 | 40.65 | 34.71 | 35 | 68.98 | |
| KG /DAY (FFIDUT) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 475.4 | 440.6 | 345.7 | 362.1 | 332 | 366.4 | 385.1 | 487.9 | 1009.2 | 894.2 | 327.5 | 313.9 | 478.3333 | |
| KG /DAY (NNHTFR) | GUIDELINE | 1726.06 | 1727.51 | 2205.58 | 2636.73 | 3500.48 | 3500.48 | 3839.26 | 3361.2 | 3500.48 | 3500.48 | 3471.71 | 3500.49 | 3039.205 | 0 |
| NO2+NO3N FIL.REAC | ACTUAL | 328.5 | 316.5 | 220.5 | 263.6 | 433.6 | 382.7 | 345.5 | 340.4 | 438.7 | 257.4 | 184 | 320.7 | 319.3416 | |
| KG /DAY (NNOTFR) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.4 | 7.5 | 7.6 | 7.5 | 7.5 | 7.5 | 7.5 | 7.3 | 7.2 | 7.3 | 7.5 | 7.4 | 7.433333 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 10 | 8.8 | 11 | 171.8 | 17.5 | 17.6 | 19.4 | 16.8 | 17.7 | 17.5 | 24.3 | 17.5 | 29.15833 | |
| KG /DAY (PPUT ) | GUIDELINE | 172.606 | 172.751 | 220.558 | 263.673 | 350.048 | 350.048 | 383.926 | 336.12 | 350.048 | 350.048 | 347.171 | 350.049 | 303.9205 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 46, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Corby Distilleries Ltd. Corbyville

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Moira R.
INDIRECT: Bay of Quinte, Lake Ontario

DESCRIPTION OF ACTIVITY: Distillery, producing industrial and beverage alcohols.

EFFLUENT QUALITY: Chemical oxygen demand of 120 mg/L and suspended solids of 60 mg/L are operational objectives.

EFFLUENT TREATMENT: Extended aeration activated sludge plant discharging to polishing lagoon and then to Moira River.

DISCHARGE TYPE: Continuous (when operating)

COMMENTS:

Treatment plant operated on an intermittent basis only, during periods of production. Moira R. impact minimal due to high streamflow.

IMIS NO.: 0001870005 SIC CODE: 109 MOE REGION: Southeast DISTRICT: Kingston

06/13/88

000187-00-0(5) CORBY DISTILLERIES LIMITED CORBYVILLE REPORT DATE: 01 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 909 | 909 | 909 | 113.7 | | | | | | | | | 710.175 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHEM. OX DEMAND | ACTUAL | 60 | 141 | 59 | 6 | | | | | | | | | 61 | |
| KG/DAY (COD) | REQUIREMENT | 109 | 109 | 109 | 13.6 | | | | | | | | | 85.15 | 1 |
| PH FIELD | ACTUAL | 7 | 7 | 7.2 | 7.1 | | | | | | | | | 7.075 | 0 |
| (FWPH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 15 | 37 | 18 | 2 | | | | | | | | | 17 | |
| KG/DAY (RSP) | REQUIREMENT | 54.5 | 54.5 | 54.5 | 6.8 | | | | | | | | | 42.575 | 0 |

NOTE: PH LIMIT 6.5-8.0, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Courtaulds Canada Ltd. and BCL Canada Ltd. Cornwall

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: At Courtaulds, dissolving sulphite pulp is reacted to form rayon. At BCL, viscose supplied by Courtaulds is made into cellulose film.

EFFLUENT QUALITY: Contains waste acids and alkalis used in the process.

EFFLUENT TREATMENT: No external effluent treatment.

DISCHARGE TYPE: Continuous through diffusers.

COMMENTS:

Requirements are based on Courtaulds' expired Control Order and BCLs' existing Control Order. Courtaulds' was out of compliance with the BOD requirements contained in its expired Control Order. Revised requirements have been set in a proposed Control Order. This Order is on hold pending the Ministry's review of Courtaulds' claim that it cannot afford to comply.

IMIS NUMBER: 0001900000 SIC CODE: 3731, 1631 MOE REGION: Southeast DISTRICT: Cornwall

08/26/88

000190-00-0(0) COURTAULDS-BCL CORNWALL REPORT DATE: 26 AUG 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/005/ ST. LAWRENCE R.

INCLUDES CONTROL POINTS: 0100 0200 0300 0400

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 10550 | 11406 | 11738 | 11703 | 11821 | 12815 | 13375 | 14525 | 13647 | 12836 | 11017 | 10654 | 12173.91 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ACIDITY TOTAL | ACTUAL | 9100 | 12000 | 10900 | 11000 | 11300 | 10100 | 10400 | 11100 | 11900 | 12700 | 10400 | 10000 | 10908 | |
| KG /DAY (ACDT ) | GUIDELINE | 14650 | 14650 | 14650 | 14650 | 14650 | 14650 | 14650 | 14650 | 14650 | 14650 | 14650 | 14650 | 14650 | 0 |
| BOD 5 DAY | ACTUAL | 2162 | 2541 | 2224 | 2880 | 2190 | 2504 | 2078 | 2469 | 2669 | 1937 | 2387 | 2339 | 2365 | |
| KG /DAY (BOD5 ) | GUIDELINE | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 12 |
| CHEM. OX DEMAND | ACTUAL | 3454 | 4153 | 4481 | 4994 | 4439 | 4506 | 4975 | 4979 | 4722 | 4728 | 4479 | 4227 | 4511 | |
| KG /DAY (COD ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 558.6 | 657.5 | 846.6 | 732.5 | 516.8 | 927.7 | 741.3 | 950.5 | 933.1 | 1277 | 947.2 | 779.1 | 822 | |
| KG /DAY (RSP ) | GUIDELINE | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 0 |
| ZINC | ACTUAL | 229 | 333 | 255 | 269 | 307 | 243 | 401 | 326 | 368 | 367 | 299 | 288 | 307 | |
| KG /DAY (ZIUT) | GUIDELINE | 728 | 728 | 728 | 728 | 728 | 728 | 728 | 728 | 728 | 728 | 728 | 728 | 728 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 75% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Cyanamid Canada Inc. Niagara Falls

INDUSTRIAL SECTOR: Inorganic Chemicals

RECEIVING WATERBODY: DIRECT: Niagara River and Queenston-Chippawa Hydro Power Canal to Niagara River

INDIRECT:

DESCRIPTION OF ACTIVITY: Calcium carbide and calcium cyanide are produced by electric arc furnaces.

EFFLUENT QUALITY: Cooling water from furnace operation.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through two outfalls

COMMENTS:

Company is in compliance. Company is not a source of BOD.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001550003 SIC CODE: 3782 MOE REGION: West Central DISTRICT: Welland

09/19/88

000155-00-0(3) CYANAMID CANADA INC NIAGARA FALLS REPORT DATE: 19 SEP 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 32400 | 32400 | 32400 | 32400 | 32400 | 32400 | 32400 | 32400 | 32400 | 32400 | 32400 | 32400 | 32400 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | | | | | | | 0 | | | | 0 | | 0 | 0 |
| KG /DAY (BOD5 ) | GUIDELINE | | | | | | | 486 | | | | 486 | | 486 | |
| CYANIDE AVAIL | ACTUAL | 0.13 | 0.0972 | 2.592 | 0.41 | 0.04 | 0 | 0 | 0.054 | 0 | 0.07 | 0.13 | 1.102 | 0.385433 | |
| KG /DAY (CCNAUR) | GUIDELINE | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 64.8 | 0 |
| PH | ACTUAL | 8.35 | 8.2 | 9.15 | 8.65 | 8.3 | 8.45 | 8.45 | 8.6 | 8.3 | 8.15 | 8.15 | 8.4 | 8.429166 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.43 | 0 | 0 | 0 | 0 | 0 | 0 | 1.08 | 0 | 1.08 | 0 | 0 | 0.215833 | |
| KG /DAY (PPUT ) | GUIDELINE | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 32.4 | 0 |
| RESIDUE PARTIC. | ACTUAL | 60 | 92.9 | 0 | 85 | 184.6 | 168.4 | 0 | 0 | 0 | 19.44 | 0.026 | 33.5 | 53.6555 | |
| KG /DAY (RSP ) | GUIDELINE | 486 | 486 | 486 | 486 | 486 | 486 | 486 | 486 | 486 | 486 | 486 | 486 | 486 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 50, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Cyanamid Canada Inc.
& PLANT LOCATION: Welland Plant
Niagara Falls

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: Thompson's Creek to Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufacturing of organic and inorganic nitrogen (ammonia, urea, nitric acid, ammonium nitrate, dicyamide) and phosphorus products.

EFFLUENT QUALITY: Process and cooling waters.

EFFLUENT TREATMENT: Wastewater discharges to product recovery system, settling lagoons and then to open outfall.

DISCHARGE TYPE: continuous through an open outfall

COMMENTS:

Loadings derived from effluent concentrations specified in Control Order. Company installing equalization pond to eliminate acute lethality. Company issued a Certificate of Approval requiring non-lethal effluent at all time.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish. Another trout bioassay conducted in 1987 indicated the E discharge to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 27.4%.

IMIS NUMBER: 0001550102 SIC CODE: 372 MOE REGION: West Central DISTRICT: Welland

09/14/88

000155-01-0(2) CYANAMID CANADA INC NIAGARA FALLS REPORT DATE: 13 SEP 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 25726 | 21878 | 31611 | 34680 | 18780 | 21869 | 17867 | 14823 | 22745 | 23580 | 29474 | 33666 | 24725 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | | 109.4 | 0 | 350 | 0 | N/A | 160.8 | 0 | 341 | N/A | 0 | 0 | 98.467 | |
| KG /DAY (BOD5 ) | REQUIREMENT | | 328.17 | 474.165 | 520.2 | 280.5 | N/A | 268.005 | 223.3 | 341.2 | N/A | 442.11 | 504.99 | 370.85 | 0 |
| NO3-N FIL.REAC | ACTUAL | 630.3 | 505.4 | 638.5 | 839.3 | 439.5 | 339 | 276.9 | 209 | 400 | 261.7 | 324.2 | 471 | 444.57 | |
| KG /DAY (NNO3FR) | GUIDELINE | 1286.3 | 1094 | 1581 | 1734 | 939 | 1094 | 893 | 741 | 1137 | 1180 | 1474 | 1683 | 1236.3 | 0 |
| NITROGEN UNF.TOT. | ACTUAL | 1939.7 | 1643 | 2121.1 | 2368.6 | 1619 | 1741 | 1343.6 | 1344 | 785 | 1075.2 | 1288 | 1438 | 1558.85 | |
| KG /DAY (NNUT ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 6.8 | 6.7 | 6.8 | 6.8 | 6.5 | 6.3 | 6.8 | 6.8 | 6.2 | 6.2 | 6.2 | 6.3 | 6.5 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 23.2 | 17.5 | 9.5 | 17.3 | 5.6 | 17.5 | 17.9 | 14.8 | 15.9 | 14.1 | 20.6 | 23.6 | 16.458 | |
| KG /DAY (PPUT ) | REQUIREMENT | 25.726 | 21.878 | 31.611 | 34.68 | 18.78 | 21.869 | 17.9 | 14.8 | 22.745 | 23.58 | 29.474 | 33.666 | 24.726 | 0 |
| RESIDUE PARTIC. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 1.8 | 0 | 0 | 101.4 | 265.3 | 0 | 30.708 | |
| KG /DAY (RSP ) | REQUIREMENT | 385.89 | 328.17 | 474.165 | 520.2 | 281.7 | 328 | 268.005 | 223.3 | 341.2 | 353.7 | 442.11 | 505 | 370.953 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 57, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Denison Mines Ltd.
& PLANT LOCATION: Elliot Lake

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Stollery Lake to Serpent River
INDIRECT: 70 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

EFFLUENT QUALITY: Contains dissolved metal salts, ammonia compounds and radioactive material.

EFFLUENT TREATMENT: Lagoon - Two stage treatment consisting of lime addition to the tailings to effect pH control and metals precipitation in tailings area, followed by barium chloride for $Ra_{226}$ precipitation and settling in a polishing pond.

DISCHARGE TYPE: Continuous

COMMENTS:

The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board. Abatement of total suspended solids to be undertaken in consultation with AECB.

IMIS NUMBER: 0001680008 SIC CODE(S): 057 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

10/07/88

000168-00-0(8) DENISON MINES LIMITED — ELLIOT LAKE — REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 15120 | 18921.6 | 28339.2 | 30240 | 27302.4 | 20649.6 | 13132.9 | 1814.2 | 13305.8 | 19180.8 | 23932.8 | 24019 | 19663.19 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | | | | 0.02 | | | 0.02 | | 0.02 | 0.02 | | 0.48 | 0.112 | 0 |
| MG/L AS (CUUT) | GUIDELINE | | | | S/C | | | S/C | | S/C | S/C | | S/C | | |
| NICKEL UNF.TOT. | ACTUAL | | | | 0.06 | | | 0.04 | | 0.1 | 0.04 | | 2.4 | 0.528 | 0 |
| MG/L (NIUT) | GUIDELINE | | | | S/C | | | S/C | | S/C | S/C | | S/C | | |
| LEAD UNF.TOT. | ACTUAL | | | | 0.04 | | | 0.04 | | 0.03 | 0.04 | | 0.72 | 0.174 | 0 |
| MG/L (PBUT) | GUIDELINE | | | | S/C | | | S/C | | S/C | S/C | | S/C | | |
| PH | ACTUAL | 7.5 | 7.7 | 7.4 | 7.3 | 7.8 | 7.9 | 7.6 | 7.2 | 7.2 | 7.3 | 7.7 | 7.4 | 7.5 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RADIUM 226 FIL. | ACTUAL | 2.5 | 2.4 | 2.9 | 1.7 | 3.3 | 3.2 | 2.6 | 1.8 | 1.7 | 1.8 | 2.5 | 2 | 2.37 | |
| PCI/L (RA) | GUIDELINE | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 0 |
| RADIUM 226 | ACTUAL | 46 | 32.1 | 59.8 | 46.4 | 71.2 | 54.9 | 48.1 | 12.7 | 18.4 | 32.7 | 73.8 | 49.7 | 45.48 | |
| PCI/L (RA226F) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 6 | 4 | 7 | 7 | 21 | 14 | 6 | 5 | 4 | 9 | 14 | 8 | 8.75 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 1 |
| ZINC UNF.TOT. | ACTUAL | | | | 0.02 | | | 0.02 | | 0.02 | 0.02 | | 0.07 | 0.03 | 0 |
| MG/L (ZNUT) | GUIDELINE | | | | S/C | | | S/C | | S/C | S/C | | S/C | | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 56, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Denison Mines Ltd. (Stanrock) Elliot Lake

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Serpent River
INDIRECT: 60 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Mine is currently closed.

EFFLUENT QUALITY: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Tailings area runoff and mine water is treated with lime slurry and barium chloride and precipitation settled in treatment ponds.

DISCHARGE TYPE: Continuous

COMMENTS:

The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board. Denison has improved treatment facilities to control pH exceedances.

IMIS NUMBER: 0001680206 SIC CODE(S): 057 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

10/07/88

000168-02-0(6) DENISON MINES LTD — ELLIOT LAKE — REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2764.8 | 2246.4 | 7344 | 475.2 | 3801.6 | 1555.2 | 1209.8 | 2332.8 | 1468.9 | 3024 | 4233.6 | 4582 | 2919.85 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | | | | 0.02 | | | 0.02 | | 0.02 | 0.02 | | 0.02 | 0.02 | 0 |
| MG/L (CUUT) | GUIDELINE | | | | S/C | | | S/C | | S/C | S/C | | S/C | | |
| NICKEL UNF.TOT. | ACTUAL | | | | 0.02 | | | 0.02 | | 0.08 | 0.04 | 0.05 | 0.02 | 0.038 | 0 |
| MG/L (NIUT) | GUIDELINE | | | | S/C | | | S/C | | S/C | S/C | S/C | S/C | | |
| LEAD UNF.TOT. | ACTUAL | | | | 0.04 | | | 0.03 | | 0.03 | 0.08 | 0.029 | 0.03 | 0.04 | 0 |
| MG/L (PBUT) | GUIDELINE | | | | S/C | | | S/C | | S/C | S/C | S/C | S/C | | |
| PH | ACTUAL | 10.9 | 10.3 | 9.3 | 9.6 | 9.1 | 8.4 | 7.8 | 7.4 | 7.3 | 6.8 | 7.1 | 8.6 | 8.55 | |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | 1 |
| RADIUM 226 | ACTUAL | 1.6 | 1.4 | 4.2 | 2.4 | 3 | 1 | 6.8 | 7.3 | 3.4 | 3.2 | 2.4 | 2.4 | 3.26 | |
| PCI/L (RA) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 5 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 3 | 1.67 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 0 |
| ZINC UNF.TOT. | ACTUAL | | | | 0.02 | | | 0.02 | | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| MG/L (ZNUT) | GUIDELINE | | | | S/C | | | S/C | | S/C | S/C | S/C | S/C | | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 47, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Denison Mines Ltd. (Williams Lake) (Beaver Pond Outlet) Elliot Lake

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Williams Lake to Beaver Pond to Serpent River
INDIRECT: 70 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Idle tailings area.

EFFLUENT QUALITY: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Tailings area runoff is treated with caustic and barium chloride, precipitate settled in Beaver Pond area and effluent discharges to Serpent River.

DISCHARGE TYPE: Continuous

COMMENTS:

The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001680107 SIC CODE(S): 057 MOE REGION: Northeast DISTRICT: Sault Ste.Marie

07/05/88

000168-01-0(7) DENISON MINES LTD — ELLIOT LAKE — REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 172.8 | 172.8 | 1987.2 | 13 | 8.5 | 2 | 138.2 | 173 | 173 | | | | 315.6 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | | | | 0.02 | | | | | 0.02 | 0.02 | | 0.02 | 0.02 | 0 |
| MG/L (CUUT) | GUIDELINE | | | | S/C | | | | | S/C | S/C | | S/C | | |
| NICKEL UNF.TOT. | ACTUAL | | | | 0.02 | | | | | 0.02 | 0.02 | | 0.02 | 0.02 | 0 |
| MG/L (NIUT) | GUIDELINE | | | | S/C | | | | | S/C | S/C | | S/C | | |
| LEAD UNF.TOT. | ACTUAL | | | | 0.04 | | | | | 0.03 | 0.03 | | 0.03 | 0.033 | 0 |
| MG/L (PBUT) | GUIDELINE | | | | S/C | | | | | S/C | S/C | | S/C | | |
| PH | ACTUAL | 8.7 | 8.1 | 8.4 | 7.3 | 7.3 | 7.3 | 7.3 | 7.2 | 7.2 | 7.1 | 7.4 | 7.8 | 7.57 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RADIUM 226 FIL. | ACTUAL | | | | 0.04 | 0.10 | 0.12 | 0.14 | 0.08 | 0.13 | | | 0.04 | 0.09 | |
| BQ/L (RA226F) | GUIDELINE | | | | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | | | 0.37 | 0.37 | 0 |
| RADIUM 226 | ACTUAL | 4.3 | 4.2 | 3.7 | 1.7 | 2.6 | 4.9 | 3.9 | 2.8 | 4.6 | 2.7 | 6.3 | 1.7 | 3.79 | |
| PCI/L (RA) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1.18 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 0 |
| ZINC UNF.TOT. | ACTUAL | | | | 0.02 | | | | | 0.02 | 0.02 | | 0.02 | 0.02 | 0 |
| MG/L (ZNUT) | GUIDELINE | | | | S/C | | | | | S/C | S/C | | S/C | S/C | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 47, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Detour Lake Mine
& PLANT LOCATION: Timmins

INDUSTRIAL SECTOR: Metal Mining, Milling, Smelting

RECEIVING WATERBODY: DIRECT: Sunday Lake
INDIRECT: Detour River

DESCRIPTION OF ACTIVITY: Gold mining and milling using carbon-in-pulp method.

EFFLUENT QUALITY: Contains copper and cyanide, and lesser amounts of other heavy metals.

EFFLUENT TREATMENT: Natural degradation in tailings (Note: $H_2O_2$ plant began treatment of tailings decant Nov/1987).

DISCHARGE TYPE: continuous

COMMENTS:

The present Certificate of Approval states the maximum allowable concentrations for copper and cyanide are 1.0 mg/L and 2.0 mg/L respectively at the final discharge point. A pilot plant study was undertaken in 1986 for treatment of the tailing decant with hydrogen peroxide. In 1987 a C. of A. was issued for treating the tailing decant by this method. By November 1987 the hydrogen peroxide plant was installed and operational. It is expected that this method will minimize any future exceedances of the C. of A.

The final treated effluent prior to installation of H2O2 Process was toxic to fish. Five of seven trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 0.3% to 10.0%.

IMIS NO.: 0028940005 SIC CODE: 0591 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

002894-00-0(5) DETOUR LAKE MINE LTD. TIMMINS REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CYANIDE AVAIL | ACTUAL | 0.113 | 0.193 | 0.107 | 1.450 | 2.540 | 0.460 | 0.098 | 0.055 | 0.044 | 0.057 | 0.052 | 0.020 | 0.432 | |
| MG/L (CCNAUR) | GUIDELINE | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 2.000 | 1 |
| COPPER UNF.TOT. | ACTUAL | 1.240 | 1.090 | 0.824 | 2.677 | 5.070 | 3.880 | 1.430 | 0.950 | 0.880 | 0.800 | 0.473 | 0.400 | 1.643 | |
| MG/L (CUUT) | REQUIREMENT | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 6 |
| NICKEL UNF.TOT. | ACTUAL | 0.050 | 0.050 | 0.024 | 0.116 | 0.200 | 0.010 | 0.060 | 0.030 | 0.030 | 0.050 | 0.010 | 0.010 | 0.053 | |
| MG/L (NIUT) | GUIDELINE | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0 |
| LEAD UNF.TOT. | ACTUAL | 0.030 | 0.030 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.010 | 0.013 | |
| MG/L (PBUT) | GUIDELINE | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0 |
| PH | ACTUAL | 6.380 | 6.080 | 6.500 | 6.900 | 7.490 | 7.200 | 7.190 | 7.120 | 7.140 | 7.170 | 7.810 | 7.210 | 7.020 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | 0.009 | 0.019 | 0.016 | 0.013 | 0.020 | 0.010 | 0.010 | 0.010 | 0.013 | 0.005 | 0.006 | 0.006 | 0.011 | |
| MG/L (ZNUT) | GUIDELINE | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Dickenson - Sullivan Joint Venture
& PLANT LOCATION: Arthur W. White Mine
Township Golden-Balmertown

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Balmer Creek - Chukuni River
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT QUALITY: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Primary tailings disposal area: secondary and tertiary polishing for cyanide removal: total retention of wastewaters during critical late-winter, early summer period for complete cyanide degradation.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMMENTS:

The effluent discharge point is shared with Placer-Dome Inc. Campbell Red Lake Mine, thus the loadings and comments for the two are identical. Effluent Flow measurements began in June; flows previous to that are unknown. The discharge and heavy metal exceedance in June were approved by stafff since tertiary pond water levels were reaching heights that may caused loss of dam stability and required lowering. Effluent discharges occurred on 169 days of the year (46%). Monthly averages are based on the mean of the daily data for those days in the month on which the discharges occurred.

Five trout bioassays conducted in 1987 indicated the final effluent is usually not acutely lethal to the test fish. Two samples collected during flow during flow events had 96 hour LC50s of greater than 100%. Two of three samples collected during no flow events had 96 hour LC50s of greater than 100%, while the third was 30.9%.

IMIS NO.: 034880004 SIC CODE: 052 MOE REGION: Northwest DISTRICT: Kenora

08/25/88

003448-00-0(4) DICKENSON SULLIVAN JOINT VENTURE BALMERTON REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | U | U | U | U | ND | 42045 | ND | 55880 | 12500 | 9770 | ND | ND | 10016.25 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| ARSENIC UNF.TOT. | ACTUAL | 0.337 | 0.283 | 0.393 | 0.361 | | 0.51 | | 0.312 | 0.492 | 0.32 | | | 0.376 | |
| MG/L (ASUT ) | REQUIREMENT | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | | 0.5 | 0.5 | 0.5 | | | 0.5 | 1 |
| CYANIDE AVAIL. | ACTUAL | 0.24 | 0.43 | 0.14 | 1.06 | | 0.23 | | 0.13 | 0.08 | 0.12 | | | 0.30375 | |
| MG/L (CCNAUR) | REQUIREMENT | 2 | 2 | 2 | 2 | | 2 | | 2 | 2 | 2 | | | 2 | 0 |
| CUMULATIVE METALS | ACTUAL | 0.9 | 1.14 | 0.72 | 1.36 | | 1.55 | | 1.12 | 1.14 | 1.12 | | | 1.13125 | |
| MG/L (CUMMET) | REQUIREMENT | 1 | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | | | 1 | 6 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

ND= NO DISCHARGE
U= UNKNOWN

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 71% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Dofasco Inc.
& PLANT LOCATION: Hamilton

INDUSTRIAL SECTOR: Iron and Steel

RECEIVING WATERBODY: DIRECT: Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: All phases of iron & steel production including 246 Coke ovens, 4 Blast Furnaces, 2 B.O.F. shops and numerous rolling mills.

EFFLUENT QUALITY: Contains heavy metals and light organics.

EFFLUENT TREATMENT: Recycle, clarification, filtration, oil recovery, ion exchange and biological treatment.

DISCHARGE TYPE: continuous through four shore outfalls.

COMMENTS:

Future reductions in suspended solids will be accomplished by eliminating overflows from the #1 Hot Mill Filtration Plant. Cyanide and suspended solids solids reductions will be acomplished with the installation of a Blast Furnace recirculating water system. Phenol reduced by improved on line treatment time for the Zimpro/HCN tower blow down and will be further reduced by diversion of the Biological Treatment Plant effluent to the Sanitary Sewer.

IMIS NUMBER: 0001460005 SIC CODE: 291 MOE REGION: West Central DISTRICT: Hamilton

08/25/88

000146-00-0(5) DOFASCO INC HAMILTON REPORT DATE: 14 JUNE 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0600

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 641361 | 641361 | 641361 | 641361 | 641361 | 641361 | 641361 | 641361 | 641361 | 641361 | 641361 | 641361 | 641361 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 485 | 2195 | 1021 | 0 | 0 | 79 | 0 | 582 | 0 | 0 | 565 | 122 | 80.58 | |
| KG /DAY (BOD5 ) | GUIDELINE | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 0 |
| CYANIDE AVAIL | ACTUAL | 39.75 | 28.74 | 50.5 | 92.44 | 85.68 | 108.78 | 71.48 | 73.93 | 47.52 | 47.84 | 55.83 | 77.74 | 65.02 | |
| KG /DAY (CCNAUR) | GUIDELINE | 157 | 157 | 157 | 157 | 157 | 157 | 157 | 157 | 157 | 157 | 157 | 157 | 157 | 0 |
| CHROMIUM UNF.TOT. | ACTUAL | 0 | 0 | 1.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.16 | |
| KG /DAY (CRUT ) | GUIDELINE | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 0 |
| IRON UNF.TOT. | ACTUAL | 2309 | 2919 | 2596 | 1616 | 1304 | 1176 | 1259 | 1194 | 842 | 1151 | 901 | 1311 | 1548.17 | |
| KG /DAY (FEUT ) | GUIDELINE | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 0 |
| NH3-N TOTAL | ACTUAL | 202.2 | 381.2 | 233.2 | 157 | 77 | 103.3 | 248.9 | 209.4 | 360.1 | 511.5 | 328.5 | 3.6 | 234.6 | |
| KG /DAY (NNHTUR) | GUIDELINE | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 7870 | 0 |
| PH | ACTUAL | 7.65 | 7.6 | 7.65 | 7.65 | 7.75 | 7.825 | 8.025 | 7.875 | 7.875 | 7.625 | 7.25 | 7.625 | 7.7 | |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | 0 |
| PHENOLS UNF-REAC | ACTUAL | 3.18 | 1.97 | 1.68 | 4.24 | 5.11 | 0.34 | 3.15 | 2.31 | 4.38 | 4.23 | 12.52 | 3.86 | 3.91 | |
| KG /DAY (PHNOL ) | GUIDELINE | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 0* | 0* | 10.9 | 3 | 22.8 | 13.9 | 4.4 | 22.5 | 7.2 | 0 | 25.7 | 0 | 6.25 | |
| KG /DAY (PPUT ) | GUIDELINE | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 0 |
| RESIDUE PARTIC. | ACTUAL | 7727 | 8829 | 5457 | 4665 | 5130 | 2182 | 2999 | 3464 | 3707 | 2648 | 1423 | 1939 | 4180 | |
| KG /DAY (RSP ) | GUIDELINE | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 0 |

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 108, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

000146-00-0(5) DOFASCO INC HAMILTON REPORT DATE: 14 JUN 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0600

DATA FOR 1987

| FLOW/LOADING | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SOLVENT EXTRACT. | ACTUAL | 0* | 0* | 0 | 0 | 0 | 0 | 0 | 119 | 70 | 0 | 101 | 0 | 0 | |
| KG /DAY (SOLEXT) | GUIDELINE | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 11800 | 0 |
| ZINC UNF.TOT. | ACTUAL | 13.4 | 93.9 | 8.2 | 12.7 | 9.6 | 4.9 | 64.38 | 26.5 | 32.6 | 34.6 | 7.3 | 39.3 | 28.9 | |
| KG /DAY (ZNUT ) | GUIDELINE | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 787 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: DOFASCO Ltd. - Adams Mine (previously reported as The Adams Mine) Kirkland Lake

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Misema River To Blanche River
INDIRECT:

DESCRIPTION OF ACTIVITY: Mining and concentrating iron ore.

EFFLUENT QUALITY: Contains iron, solids, nitrate, turbidity.

EFFLUENT TREATMENT: Tailings pond

DISCHARGE TYPE: continuous

COMMENTS:

An application for approval of a change in process was submitted in September 1987. When approved the tailings will be diverted to a worked out open pit. No effluent is expected due to the size of the pit and recycling of the water from the pit. There were two exceedances for the iron and one for suspended solids in 1987.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001400001 SIC CODE: 058 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000140-00-0(1) DOFASCO LTD - ADAMS MINE KIRKLAND LAKE REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRON UNF.TOT. | ACTUAL | 1 | 1.21 | 0.9 | 1.81 | | 0.68 | | 0.01 | 0.01 | 0.59 | 0.45 | 0.01 | 0.667 | |
| MG/L (FEUT) | GUIDELINE | 1 | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| NO2+NO3N UNF.REAC | ACTUAL | 0.5 | 2 | 3 | 0.01 | | 0 | | 0.35 | 0.01 | 0.04 | 0.45 | 0.18 | 0.654 | |
| MG/L (NNOTUR) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.3 | 7.1 | 7.6 | 7.3 | | 7.7 | | 8.1 | 7.7 | 7.7 | 8.3 | 7.9 | 7.67 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 13 | 0 | 3 | 32 | | | | 1 | 3 | 1 | 4.4 | 1 | 6.488888 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | | | | 15 | 15 | 15 | 15 | 15 | 15 | 1 |
| RESIDUE FILTERED | ACTUAL | 402 | 200 | 522 | 386 | | 334 | | 552 | 166 | 442 | 418 | 324 | 374.6 | |
| MG/L (RSF ) | GUIDELINE | | | | | | | | | | | | | | 10 |
| TURB'ITY | ACTUAL | 7 | 3.5 | 8 | 14.3 | | 9.5 | | 27 | 32 | 21.8 | 30.5 | 24.5 | 17.81 | |
| MG/L (TURB ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5. 0* INDICATES INTAKE EXCEEDED DISCHARGE. S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 TIMES OUT OF 29. FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Domtar Chemicals Ltd.
& PLANT LOCATION: Sifto Salt Division
Goderich

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: Maitland River
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Salt is mined and purified for use.

EFFLUENT QUALITY: Contains dissolved chlorides and sulphates of sodium, calcium etc.

EFFLUENT TREATMENT: Settling basins.

DISCHARGE TYPE: continuous

COMMENTS:

Monitoring indicated a 50% reduction in loadings of dissolved solids from 1985 to 1986. The discharge exceeded guideline limits for residue particulates which have been applied to this company for the first time this year. Discussions have been commenced with the industry to assess abatement program.

IMIS NUMBER: 0000140707 SIC CODE: 079 MOE REGION: Southwest DISTRICT: Owen Sound

09/26/88

000014-07-0(7) DOMTAR CHEMICALS GROUP SIFTO SALT DIVISION GODERICH

REPORT DATE: 13 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 9001 | 11198 | 11411 | 11421 | 4638 | 10274 | 10456 | 9425 | 9474 | | | 9569 | 9686.7 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHLORIDE UNF.REAC | ACTUAL | 2114 | 1633 | 1683 | 1890 | 3663 | 1564 | 1516 | 1915 | 1560 | | | 1128 | 1866.6 | |
| MG/L AS (CLIDUR) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 | 8 | 8.2 | 8.2 | 8.2 | | | 7.8 | 8.09 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 4748 | 3366 | 3518 | 3238 | 6530 | 3430 | 2956 | 4184 | | | | 2615 | 3842.777 | |
| MG/L (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 98 | 39 | 91 | 42 | | 45 | 44 | 54 | 44 | | | 63 | 57.7778 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | | 15 | 15 | 15 | 15 | | | 15 | 15 | 9 |
| RESIDUE TOTAL | ACTUAL | 4295 | 3405 | 3608 | 3280 | 6658 | 3475 | 3000 | 4238 | 3500 | | | 2678 | 3813.7 | |
| MG/L (RST ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 TIMES OUT OF 19, FOR A TOTAL COMPLIANCE RECORD OF 53% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Domtar Chemical Grp.
& PLANT LOCATION: CDC Division
Orillia

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: Lake St. John
INDIRECT: Georgian Bay

DESCRIPTION OF ACTIVITY: Produces detergents and detergent bases from ethylene oxide, fatty acids, ethylamines, etc.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Aeration lagoon.

DISCHARGE TYPE: Continuous - treated wastewaters are joined by clean cooling water prior to discharge.

COMMENTS:

Total effluent flow measurement equipment has been installed and presently being calibrated. This will also enable to determine amounts of cooling water discharged with treated wastewater .MISA Audit sampling completed early 1987.

IMIS NO.: 0000140004 SIC CODE: 3761 MOE REGION: Central DISTRICT: Barrie

05/24/88

000014-00-0(4) DOMTAR CHEMICAL GROUP; CDC DIVISION ORILLIA REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| MET BLUE ACT.SUB | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| MG/L (MBAS ) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 0.6 | 0.5 | 0.4 | 0.5 | 0.2 | 0.3 | 0.7 | 0.5 | 0.5 | 0.6 | 0.6 | 0.6 | 0.5 | |
| MG/L (NNHTUR) | GUIDELINE | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 0 |
| NO3-N UNF.REAC | ACTUAL | 0.6 | 0 | 0 | 0 | 0 | 0 | 0.8 | 1.3 | 0 | 0 | 0 | 0 | 0.225 | |
| MG/L (NNO3UR) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.6 | 7.6 | 7.6 | 7.7 | 8.3 | 8.3 | 8.2 | 8.7 | 8.5 | 8.6 | 8.2 | 8.3 | 8.133333 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0002 | 0 | 0 | 0.000016 | |
| MG/L (PHNOL ) | GUIDELINE | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.02 | 0.03 | 0.03 | 0.05 | 0.02 | 0.04 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.07 | 0.040833 | |
| MG/L (PPUT ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 10 | 8 | 8 | 7 | 8 | 7 | 7 | 12 | 11 | 9 | 6 | 6 | 8.25 | |
| MG/L (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| CARBON TOTAL | ACTUAL | 8.5 | 7.5 | 7.4 | 7.1 | 7.7 | 7.6 | 8 | 7.1 | 7.1 | 6.6 | 6.9 | 6.5 | 7.333333 | |
| MG/L (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Domtar Construction Materials Ltd. (Allanburg) Thorold

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek
INDIRECT: 15.1 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Pulp, shavings, etc. are converted into roof felts and sheathing.

EFFLUENT QUALITY: Cooling and waste water discharge.

EFFLUENT TREATMENT: Wastewater (paper machine and flooring wash waters) is recycled. "Saveall" screen used to recycle fibre.

DISCHARGE TYPE: continuous into a buried portion of the Old Welland Canal.

COMMENTS:

Target loads set by Pulp and Paper Committee consistent with Best Practicable Technology. Company connected to the sanitary sewer June 1987.

IMIS NUMBER: 0000140400 SIC CODE: 271 MOE REGION: West Central DISTRICT: Welland

07/19/88

000014-04-0(0) DOMTAR CONSTRUCTION MATERIALS LTD. THOROLD

REPORT DATE: 13 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 687 | 864 | 576 | | | | | | | | | | 709 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 1262 | 1190 | 752 | | | | | | | | | | 1068 | |
| KG /DAY (BOD5 ) | GUIDELINE | 450 | 450 | 450 | | | | | | | | | | 450 | 3 |
| RESIDUE PARTIC. | ACTUAL | 174 | 238 | 205 | | | | | | | | | | 205.6666 | |
| KG /DAY (RSP ) | GUIDELINE | 450 | 450 | 450 | | | | | | | | | | 450 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 TIMES OUT OF 6, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Domtar Fine Papers Cornwall

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Fine paper is made from logs and chips by the kraft pulping process and from purchased pulp.

EFFLUENT QUALITY: Contains dissolved and suspended solids generated from the pulping of wood, the bleaching of pulp and the manufacture of paper.

EFFLUENT TREATMENT: Primary using a clarifier.

DISCHARGE TYPE: Continuous through a submerged diffuser

COMMENTS:

A production-based total suspended solids limit was to become effective June 30, 1987. The company has asked for an extension until January 31,1989. An amending Control Order was issued on May 22, 1987, granting the extension but adding a requirement for financial assurance. The company appealed. The Appeal Board hearing is underway and will be completed some time in 1988.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000140301 SIC CODE: 271 MOE REGION: Southeast DISTRICT: Cornwall

08/26/88

000014-03-0(1) DOMTAR FINE PAPERS — CORNWALL — REPORT DATE: 26 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 97400 | 101300 | 102410 | 99870 | 101860 | 98940 | 101300 | 106090 | 103180 | 108350 | 107900 | 99700 | 102358 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 14900 | 14000 | 14700 | 14100 | 13700 | 12500 | 11600 | 12300 | 13200 | 14600 | 16300 | 14500 | 13867 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 20000 | 0 |
| RESIDUE FILTERED | ACTUAL | 99200 | 101500 | 100700 | 100600 | 99600 | 94800 | 87700 | 98400 | 90400 | 97200 | 100500 | 98400 | 97417 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 7900 | 8500 | 7900 | 7100 | 5700 | 6400 | 5700 | 6500 | 8200 | 7100 | 7200 | 6600 | 7067 | |
| KG /DAY (RSP ) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Domtar Fine Papers
& PLANT LOCATION: St. Catharines

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek
INDIRECT: 9.1 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Pulp and clean waste paper are converted into paper products.

EFFLUENT QUALITY: Enough fibres (fine) to make effluent look "milky".

EFFLUENT TREATMENT: Extensive reuse of wastewater and primary clarifier (preceded by several "Savealls" and screens. Type of starch used was changed to reduce BOD load.

DISCHARGE TYPE: continuous through an open outfall

COMMENTS:

Company is not in compliance for Biochemical Oxygen Demand loadings. Total recycle of wastewater not feasible. Further reduction of solids (polymers) has reduced BOD5. Target loads set by Pulp and Paper Committee with Best Practicable Technology.

The mill's final treated effluent normally is not toxic to fish. Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000140509 SIC CODE: 271 MOE REGION: West Central DISTRICT: Welland

09/14/88

000014-05-0(9) DOMTAR FINE PAPERS ST.CATHARINES REPORT DATE: 20 JUL 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 9481 | 9256 | 9253 | 8586 | 8868 | 9470 | 9928 | 9677 | 9204 | 9566 | 9610 | 9265 | 9347 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 635 | 472 | 694 | 472 | 709 | 655 | 682 | 738 | 780 | 825 | 748 | 751 | 680.0833 | |
| KG /DAY (BOD5 ) | GUIDELINE | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 12 |

CONTROL POINT: 0300 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDUE FILTERED | ACTUAL | 1611 | 1370 | 1998 | 1347 | 1.542 | 1669 | 1710 | 1623 | 1977 | 2042 | 1762 | 1507 | 1551.461 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 256 | 333 | 185 | 0 | 284 | 39 | 25 | 204 | 62 | 37 | 118 | 64 | 133.9166 | |
| KG /DAY (RSP ) | GUIDELINE | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Domtar Packaging Ltd.
& PLANT LOCATION: Red Rock

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Lake Superior (Nipigon Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Softwood logs and chips are made into newsprint and liner board by the groundwood and kraft processes. Kraft mill semi-bleaches some pulp.

EFFLUENT QUALITY: Contains suspended solids (bark and wood fibre) and organic compounds (some chlorinated) from the pulping process.

EFFLUENT TREATMENT: Clarifier for high solids wastewaters and spill pond. Foul condensates are steam stripped of odourous organic compounds.

DISCHARGE TYPE: Continuous surface with a separate clean cooling water discharge.

COMMENTS:

There was one exceedance of the BOD% requirement. A Control Order was issued on Sept. 29, 1986. The Company is required to meet specific BOD and TSS loadings averaged over 30 consecutive working days on the total mill effluent discharged (BOD - 23 metric tonnes/day [23,000 kg/day] and suspended solids - 5.5 metric tonnes/day [5,500 kg/day]). In addition, the Company is required to meet a toxicity requirement.

Four trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically,the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 56.8% to 84.5%.

IMIS NUMBER: 0000140202 SIC CODE(S): 271 MOE REGION: Northwest DISTRICT: Thunder Bay

05/24/88

000014-02-0(2) DOMTAR PACKAGING LTD. RED ROCK REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 93890 | 93020 | 99800 | 94180 | 102000 | 107200 | 101900 | 97510 | 91230 | 99915 | 92080 | 86050 | 96564.58 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 23350 | 19020 | 19940 | 16400 | 15300 | 15040 | 14050 | 12600 | 12910 | 13780 | 15400 | 12750 | 15878.33 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 23000 | 23000 | 23000 | 23000 | 23000 | 23000 | 23000 | 23000 | 23000 | 23000 | 23000 | 23000 | 23000 | 1 |
| RESIDUE PARTIC. | ACTUAL | 4810 | 4930 | 5340 | 4670 | 4900 | 5280 | 4790 | 4370 | 4530 | 4810 | 4900 | 4140 | 4789.166 | |
| KG /DAY (RSP ) | REQUIREMENT | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 5500 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Domtar Packaging, Trenton

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Trent River
INDIRECT: Lake Ontario (Bay of Quinte)

TYPE OF ACTIVITY: Hardwood (maple, poplar) chips are made into pulp by a sodium carbonate cook; the pulp is formed into corrugating medium.

EFFLUENT QUALITY: Solids are removed from the paper machine whitewaters by side screens and a disc filter. Some process effluent is discharged with the cooling water.

EFFLUENT TREATMENT: Spent cooking liquor is stored separately for use as a binder (30 years of experience). To eliminate odour complaints, switch was made from sulphur cooking to carbonate chemicals.

DISCHARGE TYPE: Continuous diffuser.

COMMENTS:

New paper machine which started up in 1986 resulted in increased wastewater volumes and suspended solids being discharged to the Trent River. New "broke thickener", installed in mid - 1987, has reduced suspended solids in discharge since early 1988. Control Order requiring further improvements in suspended solids reduction and addressing of effluent toxicity problem will be in place by the end of 1988.

Seven trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 19.6% to 50.3%.

IMIS NUMBER: 0000140608 SIC CODE: 271 MOE REGION: Southeast DISTRICT: Kingston

09/01/88

000014-06-0(8) DOMTAR PACKAGING TRENTON REPORT DATE: 14 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 3529 | 4037 | 3407 | 4011 | 2993 | 2578 | 2706 | 3319 | 3291 | 3290 | 3276 | 3876 | 3359.416 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 6966 | 7436 | 8439 | 8563 | 5902 | 6169 | 4232 | 7166 | 8922 | 8570 | 7518 | 6628 | 7233 | |
| KG/DAY (BOD5) | GUIDELINE | 7034 | 6956 | 7202 | 7160 | 5500 | 6593 | 6224 | 6347 | 5657 | 6466 | 6416 | 5934 | 6457 | 9 |
| RESIDUE FILTERED | ACTUAL | 12546 | 13706 | 13764 | 13300 | 9398 | 7909 | 6765 | 11298 | 9834 | 10594 | 11237 | 11202 | 10903 | |
| KG/DAY (RSF) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 2029 | 1756 | 2078 | 2968 | 1586 | 1413 | 2038 | 2828 | 2988 | 3060 | 3145 | 3116 | 2420 | |
| KG/DAY (RSP) | GUIDELINE | 1825 | 1840 | 1976 | 1889 | 1567 | 1666 | 1695 | 1754 | 1615 | 1813 | 1768 | 1616 | 1752 | 10 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 19 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 21% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Domtar Wood Preserving
& PLANT LOCATION: Trenton

INDUSTRIAL SECTOR: Wood Preserver

RECEIVING WATERBODY: DIRECT: Trent River
INDIRECT: Bay of Quinte, Lake Ontario

DESCRIPTION OF ACTIVITY: Wood preserving: Creosote and oil for hardwood railway ties and oil and pentachlorophenol for utility poles.

EFFLUENT QUALITY: Contamination by chlorophenol, phenols and low levels of dioxins and furans.

EFFLUENT TREATMENT: A portion of the discharge is treated using activated carbon filters.

DISCHARGE TYPE: Continuous

COMMENTS:

Control Order issued on March 1, 1988 requiring Company to install a wastewater treatment system, surface collection system and a leachate collection system. Domtar has submitted an application for approval of an upgrade to its effluent treatment process. Existing effluent objectives only for carbon filtration system effluent set out in Certificate of Approval #4-081-81 dated September 21st, 1982. Phenols: 20 micrograms/L; maximum loading .014 kg/day. Pentachlorophenol: 100 micrograms/L; maximum loading 0.68 kg/day. Effluent objectives will be reviewed for revision on new Certificate of Approval for upgraded treatment process. New objectives will consider total loading from all discharges. Treatment unit effluent to be added as IMIS reporting location to permit compliance assessment. Guidelines used below are based on best Professional Judgement.

IMIS NO.:0000141200 SIC CODE:2591 MOE REGION: Southeast DISTRICT: Kingston

09/01/88

000014-12-0(0) DOMTAR WOOD PRESERVING TRENTON, P.O.BOX 460 REPORT DATE: 15 APR 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/1220 TRENT R.

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 156.2 | 146 | 502 | 413 | 184 | 261 | 155 | 187 | 209 | 121 | 168 | 300 | 233.5166 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.1235 | 0.1245 | 0.1435 | 0.146 | 0.2595 | 0.1875 | 0.024 | 0.0435 | 0.0255 | 0.0405 | 0.034 | 0.222 | 0.1145 | |
| MG/L (PHNOL) | GUIDELINE | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 7 |
| SOLVENT EXTRACT. | ACTUAL | 3.5 | 5.5 | 9.3 | 6.225 | 5.2 | 10.95 | 8.48 | 12.05 | 29.65 | 9.94998 | 18 | 7.84998 | 10.55458 | |
| MG/L (SOLEXT) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 2 |
| PENTACHL PHENOL | ACTUAL | 1.38249 | 1.048 | 0.739998 | 1.637 | 0.862498 | 0.2335 | 404.121 | 0.2435 | 1.382 | 0.768498 | 0.993998 | 1.225 | 34.55312 | |
| MG/L (X3PCPH) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 63% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Dow Chemical Canada Inc. Sarnia

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Brine and feed from the petroleum refineries are used to make a wide range of chlorine related products.

EFFLUENT QUALITY: Contains a great variety of chlorinated hydrocarbons.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through seven outfalls

COMMENTS:

In compliance.

IMIS NUMBER: 0000910109 SIC CODE: 3731, 3712 MOE REGION: Southwest DISTRICT: Sarnia

06/16/88

000091-01-0(9) DOW CHEMICAL CANADA INC SARNIA DIVISION PO BOX 3030 SARNIA REPORT DATE: 30 AUG 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0200 0300 0500 0600 0700 0900 1000

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 703810 | 639000 | 632000 | 629400 | 703000 | 679100 | 786100 | 823900 | 864700 | 763000 | 742000 | 781300 | 728942.5 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ALK TOTAL | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| KG /DAY (ALKT ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.871428 | 7.842857 | 7.814285 | 7.842857 | 7.957142 | 8.057142 | 8.085714 | 8.114285 | 8.114285 | 8.071428 | 8.014285 | 7.9 | 7.973809 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 1.1 | 1.38 | 1.1 | 1.25 | 0.85 | 1.29 | 0.46 | 0.73 | 0.49 | 0.61 | 0.84 | 1.26 | 0.946666 | |
| KG /DAY (PHNOL ) | GUIDELINE | 83.8906 | 74.81 | 71.696 | 74.426 | 87.158 | 84.342 | 95.56 | 102.25 | 107.568 | 90.2 | 88.86 | 89.536 | 87.52471 | 0 |
| RESIDUE PARTIC. | ACTUAL | 1920 | 3140 | 5230 | 4240 | 4410 | 3280 | 3760 | 4680 | 4310 | 3170 | 3920 | 3530 | 3799.166 | |
| KG /DAY (RSP ) | GUIDELINE | 65894.54 | 58980 | 56910 | 59030.81 | 68406 | 66387 | 75241.5 | 80209.5 | 84237 | 71115 | 69990 | 70917 | 68943.19 | 0 |
| CARBON TOTAL | ACTUAL | 530 | 420 | 430 | 450 | 420 | 440 | 400 | 530 | 550 | 490 | 610 | 510 | 481.6666 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Dupont Canada Inc. Corunna

INDUSTRIAL SECTOR: Organic Chemical, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock (ethylene) from the petroleum refineries in Sarnia is used to make plastics.

EFFLUENT QUALITY: Contains organic compounds at trace levels

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous at shore

COMMENTS:

Experienced two monthly exceedances for phenol as follows; in July, Dupont developed a Dowtherm 'A' leak. The September exceedance was due to abnormal operating conditions during the plant shutdown.

IMIS NUMBER: 0000080309 SIC CODE: 3731 MOE REGION: Southwest DISTRICT: Sarnia

08/31/88

000008-03-0(9) DU PONT CANADA INC ST CLAIR RIVER WORKS CORUNNA

CONTROL POINT: 0200 DATA FOR 1987

REPORT DATE: 13 APR 88

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 41472 | 41472 | 40608 | 40608 | 48384 | 50112 | 56160 | 57024 | 33696 | 54432 | 45792 | 43200 | 46080 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.09 | 0.09 | 0.1 | 0.16 | 0.11 | 0.21 | 1.37 | 0.62 | 0.68 | 0.44 | 0.38 | 0.42 | 0.389166 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.829439 | 0.829439 | 0.812159 | 0.812159 | 0.967679 | 1.00224 | 1.1232 | 1.14048 | 0.673919 | 1.08864 | 0.915839 | 0.864 | 0.921599 | 2 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 83% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Dupont Canada Ltd. (Kingston Works) Kingston

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: 0.9 Km to Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Adipic acid and Hexamethlyenediamine react to form a synthetic-nylon.

EFFLUENT QUALITY: Contains soluble and insoluble organics such as phenols.

EFFLUENT TREATMENT: Partial settling.

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance.

IMIS NUMBER: 0000080101 SIC CODE: 1811 MOE REGION: Southeast DISTRICT: Kingston

06/13/88

000008-01-0(1) DUPONT CANADA INC. KINGSTON TOWNSHIP REPORT DATE: 14 JUN 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 45556 | 45044 | 46232 | 53744 | 69222 | 94750 | 106224 | 108042 | 110556 | 90508 | 58176 | 45950 | 72833.66 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| DOWTHERM | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| MG/L (IWDOWT) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8.1 | 8.15 | 8 | 8.1 | 8.15 | 8.1 | 8.15 | 8.15 | 8.1 | 8.15 | 8.165 | 8.15 | 8.122083 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.006 | 0.02 | 0.021 | 0.048 | 0.039 | 0.156 | 0.398 | 0.249 | 0.077 | 0.031 | 0.113 | 0.046 | 0.085 | |
| KG/DAY (PHNOL) | GUIDELINE | 0.911 | 0.901 | 0.925 | 1.075 | 1.384 | 1.895 | 2.124 | 2.161 | 2.211 | 1.810 | 1.164 | 0.919 | 1.457 | 0 |
| CARBON TOTAL | ACTUAL | 430.5 | 508.9 | 929.3 | 612.7 | 581.4 | 1056.5 | 759.6 | 713.1 | 912.1 | 802.8 | 607.9 | 588.1 | 764.7 | |
| KG/DAY (TOC ) | GUIDELINE | 1518.4 | 1501.3 | 1540.9 | 1791.3 | 2307.2 | 3158.0 | 3540.4 | 3601.0 | 3684.8 | 3016.6 | 1939.0 | 1531.5 | 2427.5 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Dupont Canada Inc. Maitland

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Chemicals are converted to precursors of nylon, engineered plasitcs, spandex yarn, hydrogen peroxide and chlorofluorcarbons.

EFFLUENT QUALITY: Contains soluble and insoluble organics.

EFFLUENT TREATMENT: Activated sludge, pre-denitrification/nitrification.

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance.

IMIS NUMBER: 0000080002 SIC CODE: 3712 MOE REGION: Southeast DISTRICT: Kingston

06/13/88

000008-00-0(2) DUPONT CANADA INC. MAITLAND REPORT DATE: 15 APR 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/005/ ST. LAWRENCE R.

INCLUDES CONTROL POINTS: 0200 0300

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 148620 | 147710 | 145900 | 152700 | 174900 | 208660 | 214660 | 170000 | 218760 | 195260 | 173710 | 175630 | 177209.1 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 926.9 | 562.8 | 775.1 | 660.8 | 480.3 | 317.9 | 716.8 | 574.3 | 1116.89 | 545.2 | 1067.39 | 412 | 679.6983 | |
| KG /DAY (BOD5 ) | GUIDELINE | 2227.5 | 2214 | 2184 | 2287.5 | 2622 | 3129 | 3219 | 2548.5 | 3280.5 | 2928 | 2602.5 | 2632.5 | 2656.25 | 0 |
| KJELDAHL ORGANIC | ACTUAL | 441.5 | 338 | 283.5 | 286.9 | 246.8 | 136.6 | 174.4 | 152.4 | 533.4 | 1504.49 | 381.6 | 296.8 | 398.0325 | |
| KG /DAY (NNKUR ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 686.6 | 627.3 | 523.6 | 614.6 | 340.8 | 548.3 | 533.4 | 522.2 | 460.5 | 448.6 | 446.2 | 373.2 | 510.4416 | |
| KG /DAY (RSP ) | GUIDELINE | 2227.5 | 2214 | 2184 | 2287.5 | 2622 | 3129 | 3219 | 2548.5 | 3280.5 | 2928 | 2602.5 | 2632.5 | 2656.25 | 0 |
| CARBON TOTAL | ACTUAL | 642.31 | 413.8 | 622.8 | 585.9 | 344.2 | 291.3 | 596.2 | 540.3 | 857.5 | 511.6 | 781.8 | 370.3 | 546.5008 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: E. B. Eddy Forest Products Ltd.
& PLANT LOCATION: Espanola

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Spanish River
INDIRECT: 47 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Hardwood and softwood logs and chips are converted by the bleached kraft pulping process into pulp and paper.

EFFLUENT QUALITY: Contains suspended solids (bark, wood and paper) and dissolved organic compounds.

EFFLUENT TREATMENT: Two clarifiers on paper machine effluents; the total effluent is treated by settling basins, an aeration lagoon and a settling lagoons. Foul condensates are steam stripped to remove odourous organics. In-mill recovery systems remove bark fines and fibre in the wastewaters from pulp washing, paper machine and bleaching areas.

DISCHARGE TYPE: continuous at shore

COMMENTS:

In compliance. The BOD limit of 3630 kilograms per day is specified in the Control Order. The Total Suspended solids value is a guideline number.

This mill's discharge is normally not acutely lethal to fish. Three trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000980003 SIC CODE(S): 271 MOE REGION: Northeast DISTRICT: Sudbury

07/05/88

000098-00-0(3) E.B.EDDY FOREST PRODUCTS LIMITED STATION ROAD ESPANOLA

REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 101700 | 102400 | 106200 | 107100 | 115600 | 132000 | 132600 | 138000 | 115700 | 119000 | 112000 | 104000 | 115525 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 2400 | 2900 | 2400 | 2100 | 1400 | 1500 | 1600 | 1200 | 1400 | 1400 | 1300 | 2300 | 1825 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 3590 | 3590 | 3590 | 3590 | 3590 | 3590 | 3590 | 3590 | 3590 | 3590 | 3590 | 3590 | 3590 | 0 |
| PH | ACTUAL | 7.2 | 7.2 | 7.2 | 7.2 | 7.1 | 7.1 | 7.2 | 7.1 | 7.2 | 7.4 | 7.4 | 7.4 | 7.225 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 5900 | 6500 | 5400 | 4000 | 4500 | 5400 | 2800 | 4000 | 3300 | 3200 | 3800 | 5300 | 4508.333 | |
| KG /DAY (RSP ) | REQUIREMENT | 10600 | 10600 | 10600 | 10600 | 10600 | 10600 | 10600 | 10600 | 10600 | 10600 | 10600 | 10600 | 10600 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: E.B. Eddy Forest Products Ltd. Ottawa

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Ottawa River
INDIRECT: St. Lawrence River

DESCRIPTION OF ACTIVITY: Converts pulp into paper for writing and printing.

EFFLUENT QUALITY: Contains suspended solids (paper) and trace organics.

EFFLUENT TREATMENT: Three "Savealls", whitewater recycle systems and a clarifier remove solids.

DISCHARGE TYPE: Continuous through a discharge pipe.

COMMENTS:

The Control Order specifies that E. B. Eddy cannot exceed 9 lbs of suspended solids discharged per ton of saleable product.

Since 1978, the company's suspended solids discharge has been evaluated on monthly average values. On this basis, the mill was in compliance in 1987 and is expected to be in compliance 1988. Changes in paper grade have resulted in slight increases in BOD over previous years and caused exceedances of the guideline limit. The Control Order will be amended in 1988 to bring it into conformity with current Ministry policy.

One of three trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 52.9%.

IMIS NUMBER: 0000980201 SIC CODE: 271 MOE REGION: Southeast DISTRICT: Ottawa

09/27/88

000098-02-0(1) E B EDDY FOREST PRODUCTS LIMITED OTTAWA REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 9720 | 9560 | 6930 | 6320 | 8310 | 9280 | 9300 | 9710 | 9820 | 9850 | 9950 | 9470 | 9018.333 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 1180 | 1240 | 1040 | 1241 | 1180 | 1398 | 1300 | 1440 | 1350 | 1280 | 1540 | 1270 | 1288.25 | |
| KG /DAY (BOD5 ) | GUIDELINE | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 9 |
| RESIDUE PARTIC. | ACTUAL | 680 | 490 | 470 | 328 | 500 | 450 | 300 | 500 | 139 | 460 | 560 | 600 | 456.4166 | 0 |
| KG /DAY (RSP ) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 63% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Eldorado Resources Ltd. Blind River

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Mississagi R. mouth
INDIRECT: North Channel (Lake Huron)

DESCRIPTION OF ACTIVITY: Uranium refining using concentrated nitric acid solvent , extraction and evaporation/decomposition of the nitrate to the oxide by the addition of heat.

EFFLUENT QUALITY: Effluent contains, nitrates, uranium and phosphorus.

EFFLUENT TREATMENT: Holding ponds.

DISCHARGE TYPE: Batch

COMMENTS:

Under AECB licence requirements.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 4.9% and 10.0%.

IMIS NUMBER: 0000820308 SIC CODE: 295 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

07/05/88

000082-03-0(8) ELDORADO RESOURCES LTD FUEL SERVICES BLIND RIVER REPORT DATE: 17 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 317.2857 | | 259.4285 | 342.7142 | 570.5714 | 656.1428 | 427.7142 | 623.4285 | 512.2857 | 562.8571 | 575.2857 | 427.1428 | 479.5324 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NO3-N UNF.REAC | ACTUAL | 49 | 57 | 70 | 57 | 53 | 44 | 61 | 55 | 43 | 56 | 38 | 60 | 53.58333 | |
| MG/L (NNO3UR) | REQUIREMENT | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 | 0 |
| PH | ACTUAL | | | 7.6 | 7.2 | 7.8 | 8.05 | 7.3 | 7.8 | 7.9 | 8 | 7.8 | 7.75 | 7.72 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| URANIUM UNF.TOT. | ACTUAL | 0.06 | 0.04 | 0.04 | 0.05 | 0.04 | 0.03 | 0.06 | 0.08 | 0.07 | 0.08 | 0.07 | 0.07 | 0.0575 | |
| MG/L (UUUT ) | GUIDELINE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 34, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Eldorado Nuclear Ltd.
& PLANT LOCATION: Port Granby

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Leachate is collected and chemically treated.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Leachate from site collected in two ponds. Leachate chemically treated for arsenic and radium removal. Precipitated arsenic and radium are settled out in ponds, and treated effluent is discharged to Lake Ontario together with offsite groundwater intercepted at periphery of site.

DISCHARGE TYPE: Batch Discharge

COMMENTS:

Decommissioning of the site is indefinite. Effluent quality limits are set in AECB operating licence.License limits compliance point changed effective July 1, 1985 to Interceptor effluent. Arsenic exceedances in Feb, Apr, and July are minmal; a flow equilization timer control will be operational June 1/88, and is expected to lower arsenic levels leaving treatment facility. Only radium in Licence limits. Arsenic concentration limits under review by AECB and MOE.

IMIS NUMBER: 0000820209 SIC CODE: 295 MOE REGION: Central DISTRICT: Peterborough

08/26/88

000082-02-0(9) ELDORADO NUCLEAR LIMITED (PORT GRANBY) PORT HOPE

CONTROL POINT: 0200 DATA FOR 1987

REPORT DATE: 19 SEP 88

| FLOW/CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 0 | 0 | 216.11 | 297.6 | 175.4 | 182.7 | 168.3 | 186.7 | 211.7 | 207.4 | 188.6 | 299.5 | 177.9 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ARSENIC UNF.TOT. | ACTUAL | 0.34 | 0.64 | 0.49 | 0.52 | 0.37 | 0.28 | 0.59 | 0.16 | 0.14 | 0.11 | 0.27 | 0.26 | 0.348 | |
| MG/L (ASUT) | GUIDELINE | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 3 |
| PH | ACTUAL | 8.98 | 8.13 | 7.55 | 8.88 | 9.18 | 9.39 | 9.11 | 9 | 9.2 | 9.12 | 9.02 | 8.44 | 8.83 | 0 |
| (PH) | GUIDELINE | | | | | | | | | | | | | | |
| RADIUM 226 | ACTUAL | 0.08 | 0.07 | 0.09 | 0.07 | 0.06 | 0.055 | 0.055 | 0.056 | 0.07 | 0.063 | 0.063 | 0.058 | 0.066 | |
| BQ/L (RA) | GUIDELINE | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0 |
| URANIUM UNF.TOT. | ACTUAL | 1.02 | 1.18 | 0.96 | 1.08 | 1.02 | 0.84 | 0.97 | 0.51 | 0.58 | 0.33 | 0.61 | 0.66 | 0.813 | |
| MG/L (UUUT ) | GUIDELINE | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 0 |

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.5-9.5

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Eldorado Nuclear Ltd. Port Hope

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Uranium oxide (U03) is extracted from concentrates and converted into (UF6).

EFFLUENT QUALITY:

EFFLUENT TREATMENT:

DISCHARGE TYPE: Two discharge pipes at surface.

COMMENTS:

No flow measurements available - estimates only. Reported is the concentration of specific parameters from control point 02.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000820001 SIC CODE: 295 MOE REGION: Central DISTRICT: Peterborough

07/05/88

000082-00-0(1) ELDORADO NUCLEAR LIMITED PORT HOPE REPORT DATE: 15 APR 88

CONTROL POINT: 0200 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLUORIDE UNF.TOT. | ACTUAL | 0.35 | 0.43 | 0.33 | 0.32 | 0.34 | 0.44 | 0.28 | 0.36 | 0.29 | 0.26 | 0.21 | 0.33 | 0.328333 | |
| MG/L (FFIDUT) | GUIDELINE | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 0 |
| NH3-N TOTAL | ACTUAL | 0.1 | 0.08 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.23 | 0.1 | 0.1 | 0.1 | 0.109166 | |
| MG/L (NNHTUR) | GUIDELINE | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| NO2+NO3N UNF.REAC | ACTUAL | 3.1 | 2.62 | 2.87 | 2.5 | 2.14 | 2.06 | 1 | 1.73 | 2.26 | 2.05 | 1.9 | 3 | 2.269166 | |
| MG/L (NNOTUR) | GUIDELINE | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 0 |
| URANIUM UNF.TOT. | ACTUAL | 0.06 | 0.1 | 0.07 | 0.03 | 0.03 | 0.03 | 0.01 | 0.02 | 0.02 | 0.04 | 0.03 | 0.04 | 0.04 | |
| UG/L (UUUT ) | GUIDELINE | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1985**

COMPANY NAME: Eldorado Nuclear Ltd.
& PLANT LOCATION: Welcome Waste Site

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Leachate is collected and chemically treated

EFFLUENT QUALITY: Chemical precipitation

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous submerged

COMMENTS:

Decommissioning of the site is indefinite. Effluent quality limits are set in AECB operating licence. Collection ponds re-constructed in 1986 to improve arsenic treatment. Only Radium and Arsenic concentrations in Licence Limits - No loading criteria.

IMIS NUMBER: 0000820100 SIC CODE: 295 MOE REGION: Central DISTRICT: Peterborough

05/17/88

000082-01-0(0) ELDORADO NUCLEAR LIMITED (WELCOME) PORT HOPE

CONTROL POINT: 0100 DATA FOR 1987

REPORT DATE: 15 APR 88

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 119.07 | 127.26 | 246.39 | 251.1 | 278.13 | 432.32 | 121.1891 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ARSENIC UNF.TOT. | ACTUAL | 0.15 | 0.16 | 0.1 | 0.1 | 0.11 | 0.18 | 0.25 | 0.17 | 0.25 | 0.11 | 0.06 | 0.01 | 0.1375 | |
| MG/L (ASUT) | GUIDELINE | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| PH | ACTUAL | 7.45 | 7.61 | 7.3 | 7.59 | 7.85 | 7.88 | 7.75 | 7.78 | 7.67 | 7.79 | 7.77 | 7.14 | 7.631666 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| RADIUM 226 FIL. | ACTUAL | 0.055 | 0.055 | 0.055 | 0.07 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.055 | 0.05625 | |
| BQ/L (RA226F) | GUIDELINE | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Esso Chemicals Canada Ltd. Sarnia

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF PROCESS: Polymerizes ethylene produced from natural gas and feed from petroleum refinery to produce polyethylene. Polymerizes vinyl chloride monomer to produce polyvinyl chloride. Fractionates feed from refinery to produce benzene, toluene and xylene.

EFFLUENT QUALITY: Contains insoluble and soluble hydrocarbons.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through an extended outfall

COMMENTS:

In compliance.

IMIS NUMBER: 0000070201 SIC CODE: 3731 MOE REGION: Southwest DISTRICT: Sarnia

06/10/88

000007-02-0(1) ESSO CHEMICAL CANADA DIVISION OF IMPERIAL OIL LTD PO BOB 3004 SARNIA

REPORT DATE: 31 MAY 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 29099.58 | 29599.65 | 33200.16 | 29199.60 | 30899.84 | 31599.94 | 33300.18 | 38000.84 | 38700.94 | 40601.21 | 35200.45 | 34500.35 | 33658.56 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 5.82 | 2.96 | 0 | 2.92 | 6.18 | 3.16 | 3.33 | 0 | 7.74 | 8.12 | 3.52 | 3.45 | 3.933333 | |
| KG /DAY (NNHTFR) | GUIDELINE | 290.9958 | 295.9965 | 332.0016 | 291.9960 | 308.9984 | 315.9994 | 333.0018 | 380.0 | 387.0094 | 406.0121 | 352.0045 | 345.0035 | 336.58 | 0 |
| PH | ACTUAL | 7.5 | 7.4 | 7.7 | 7.5 | 7.3 | 7.5 | 7.5 | 7.5 | 7.4 | 7.5 | 7.4 | 7.3 | 7.458333 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.035 | 0.068 | 0.033 | 0.031 | 0.031 | 0.032 | 0.023 | 0.008 | 0.058 | 0.032 | 0.014 | 0.007 | 0.031 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.581991 | 0.591993 | 0.664003 | 0.583992 | 0.617996 | 0.631998 | 0.666003 | 0.760016 | 0.774018 | 0.812024 | 0.704009 | 0.690007 | 0.673171 | 0 |
| RESIDUE FILTERED | ACTUAL | 3652 | 0 | 1199 | 2596 | 541 | 319 | 996 | 2417 | 1254 | 4267 | 1292 | 2160 | 1724.416 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 107.7 | 0 | 0 | 0 | 0 | 0 | 0 | 110.2 | 0 | 0 | 102.1 | 0 | 26.66666 | |
| KG /DAY (RSP ) | GUIDELINE | 436.4937 | 443.9948 | 498.0025 | 437.9940 | 463.4976 | 473.9991 | 499.5 | 570.0127 | 580.5 | 609 | 528.0067 | 517.5 | 504.9 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 5.82 | 20.72 | 0 | 17.5 | 0 | 3.16 | 0 | 38 | 19.35 | 0 | 0 | 0 | 8.7125 | |
| KG /DAY (SOLEXT) | GUIDELINE | 290.9958 | 295.9965 | 332.0016 | 291.9960 | 308.9984 | 315.9994 | 333.0 | 380.0084 | 387.0094 | 406.01 | 352.0 | 345 | 325.3757 | 0 |
| SULPHIDE UNF.REAC | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| KG /DAY (SSIDUR) | GUIDELINE | | | | | | | | | | | | | | |
| CARBON TOTAL | ACTUAL | 110.5 | 118.4 | 166 | 146 | 102 | 91.6 | 86.6 | 64.6 | 116.1 | 182.7 | 63.4 | 126 | 114.4916 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Esso Petroleum Canada
& PLANT LOCATION: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT QUALITY: Contains insoluble and soluble compounds from crude oil at the parts per billion range.

EFFLUENT TREATMENT: Once through cooling water receives gravity separation prior to discharge to the St. Clair River. Process and essentially all storm water receives both primary and secondary (biological) treatment before discharge. High strength wastewaters and effluent from the sour water stripper are biologically pretreated before discharge to the activated sludge process. Other wastewaters are filtered by sand and anthracite before discharge to the activated sludge process.

DISCHARGE TYPE: continuous through three outfalls

COMMENTS:

In compliance.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000070102 SIC CODE: 3651 3652 MOE REGION: Southwest DISTRICT: Sarnia

08/31/88

000007-01-0(2) ESSO PETROLEUM CANADA DIVISION OF IMPERIAL OIL LTD PO BOX 3004 SARNIA REPORT DATE: 31 AUG 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0200 0300

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 210007.0 | 210407.1 | 210507.1 | 210507.1 | 203906.2 | 205606.4 | 205706.4 | 205906.5 | 206506.5 | 206106.5 | 206706.6 | 210707.1 | 207715.0 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 5.31 | 28.96 | 25.48 | 56.66 | 9.28 | 5.32 | 6.7 | 9.52 | 4.26 | 5.52 | 1.3 | 26.59 | 15.40833 | |
| KG /DAY (NNHTFR) | GUIDELINE | 2100.07 | 2104.07 | 2105.07 | 2105.07 | 2039.06 | 2056.06 | 2057.06 | 2059.07 | 2065.07 | 2061.07 | 2067.07 | 2107.07 | 2077.15 | 0 |
| PH | ACTUAL | 7.55 | 7.45 | 7.6 | 7.6 | 7.45 | 7.65 | 7.55 | 7.7 | 7.5 | 7.6 | 7.55 | 7.25 | 7.5375 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.19 | 0.16 | 0.452 | 0.451 | 0.302 | 0.142 | 0.18 | 0.402 | 0.482 | 0.428 | 0.21 | 2.4 | 0.48325 | |
| KG /DAY (PHNOL ) | GUIDELINE | 4.20 | 4.21 | 4.21 | 4.21 | 4.08 | 4.11 | 4.11 | 4.12 | 4.13 | 4.12 | 4.13 | 4.20 | 4.15 | 0 |
| RESIDUE FILTERED | ACTUAL | 7544 | 10660 | 7686 | 6909 | 5814 | 6279 | 4603 | 9820 | 5909 | 9324 | 5268 | 7591 | 7283.916 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 303 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89.28 | 0 | 32.69 | |
| KG /DAY (RSP ) | GUIDELINE | 3150.11 | 3156.11 | 3157.61 | 3157.61 | 3058.59 | 3084.10 | 3085.60 | 3088.60 | 3097.60 | 3091.60 | 3100.60 | 3160.61 | 3115.73 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 19.47 | 18.1 | 0 | 10.9 | 1.16 | 2.66 | 9.38 | 12.24 | 7.1 | 5.52 | 2.88 | 5.52 | 7.910833 | |
| KG /DAY (SOLEXT) | GUIDELINE | 2100.07 | 2104.07 | 2105.07 | 2105.07 | 2039.06 | 2056.06 | 2057.06 | 2059.07 | 2065.07 | 2061.07 | 2067.07 | 2107.07 | 2077.15 | 0 |
| SULPHIDE UNF.REAC | ACTUAL | 0 | 0 | 3.64 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.303333 | |
| KG /DAY (SSIDUR) | GUIDELINE | | | | | | | | | | | | | | |
| CARBON TOTAL | ACTUAL | 138 | 161.1 | 244.6 | 139.96 | 189.5 | 106.8 | 381.7 | 213.3 | 164.6 | 465.2 | 80.2 | 98.3 | 198.605 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Ethyl Canada Inc.
& PLANT LOCATION: Corunna

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Tetraethyl lead is made from a lead-sodium alloy and ethyl chloride.

EFFLUENT QUALITY: Contains organic lead

EFFLUENT TREATMENT: Physical-chemical.

DISCHARGE TYPE: continuous through an extended outfall

COMMENTS:

In compliance.

IMIS NUMBER: 0000120006 SIC CODE: 374 MOE REGION: Southwest DISTRICT: Sarnia

08/31/88

000012-00-0(6) ETHYL CANADA INC — CORUNNA — REPORT DATE: 10 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 25404 | 19422 | 22949 | 25284 | 33538.1 | 39629 | 44062 | 46476 | 46372 | 37490 | 32576 | 25990 | 33266.00 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| LEAD UNF.TOT. | ACTUAL | 5.8 | 5.6 | 9.2 | 6.75 | 9.56 | 5.54 | 7.45 | 7.05 | 7.93 | 5.76 | 7.96 | 7.15 | 7.145833 | |
| KG /DAY (PBUT ) | GUIDELINE | 25.404 | 19.422 | 22.949 | 25.284 | 33.5381 | 39.629 | 44.062 | 46.476 | 46.372 | 37.49 | 32.576 | 25.99 | 33.26600 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Exolon
& PLANT LOCATION: Thorold

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: 9.7 km from Beaverdams Pond to 12 Mile Creek
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: Manufactures abrasive products

EFFLUENT QUALITY: Furnace cooling water.

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001640002 SIC CODE: 357 MOE REGION: West Central DISTRICT: Welland

07/19/88

000164-00-0(2) EXOLON THOROLD REPORT DATE: 20 JUL 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 10900 | 10900.4 | 10900.8 | 10900.4 | 10900.8 | 10900.8 | 10900.8 | 10900.8 | 10900.8 | 10900.8 | 10900.8 | 10900.8 | 10900.66 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 0 | 0 | 0 | 0 | 76.3 | 0 | 0 | 0 | 0 | 0 | 0 | 54.5 | 10.9 | |
| KG /DAY (RSP ) | GUIDELINE | 163.5 | 163.506 | 163.512 | 163.506 | 163.512 | 163.512 | 163.512 | 163.512 | 163.512 | 163.512 | 163.512 | 163.512 | 163.51 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 0 | 1.09 | 0 | 0 | 1.09 | 0 | 0 | 0 | 0 | 0 | 4.3 | 0 | 0.54 | |
| KG /DAY (SOLEXT) | GUIDELINE | 163.5 | 163.506 | 163.512 | 163.506 | 163.512 | 163.512 | 163.512 | 163.512 | 163.512 | 163.512 | 163.512 | 163.512 | 163.51 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Explosives Technologies International Inc. (ETI)
Nipissing Works
(previously reported as DuPont Canada Inc - Nipissing works)
North Bay

INDUSTRIAL SECTOR: Inorganic Chemicals

RECEIVING WATERBODY: DIRECT: Wasi River - Lake Nipissing
INDIRECT: 121 km from French R. Main Channel

DESCRIPTION OF ACTIVITY: Production of explosives.

EFFLUENT QUALITY: Contains nitrates and ammonia.

EFFLUENT TREATMENT: Equalization pond for pH control.

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance with - Objectives for the control of Industrial Waste Discharges in Ontario. There are two outfalls: pond effluent and building #339 effluent.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NO.: 0000080200 SIC CODE: 379 MOE REGION: Northeast DISTRICT: North Bay

09/06/88

000008-02-0(0) EXPLOSIVES TECHNOLOGIES INTERNATIONAL INC NORTH BAY ONT REPORT DATE: 31 MAY 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/002/5430 FRENCH R. MAIN CHANNEL

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 3024 | 3359 | 3538.4 | 4467.6 | 3611 | 3611 | 3134 | 3138.8 | 3148.8 | 2366.5 | 2750.5 | 2751.1 | 3241.725 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 10.86 | 10.76 | 11.06 | 13.9 | 12.5 | 11.4 | 7.5 | 9.18 | 8.3 | 6.2 | 9.8 | 10 | 10.12166 | |
| KG /DAY (NNHTFR) | GUIDELINE | 30.24 | 33.59 | 35.384 | 44.676 | 36.11 | 36.11 | 31.34 | 31.388 | 31.488 | 23.665 | 27.505 | 27.511 | 32.41725 | 0 |
| NO2+NO3N FIL.REAC | ACTUAL | 6.77 | 10.16 | 13.33 | 14.7 | 7.9 | 11.5 | 9.1 | 7.95 | 8.2 | 6.1 | 7.6 | 7 | 9.1925 | |
| KG /DAY (NNOTFR) | GUIDELINE | | | | | | | | | | | | | | |
| PH FIELD | ACTUAL | 6.8 | 7.3 | 7.1 | 6.6 | 7 | 6.8 | 7 | 6.9 | 7 | 6.8 | 6.7 | 6.6 | 6.883333 | 0 |
| (FWPH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 260.5 | 352 | 578.8 | 493.7 | 328.7 | 293.8 | 190 | 270 | 247.5 | 152.9 | 315.2 | 372.8 | 321.325 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Falconbridge Ltd. INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining
& PLANT LOCATION: Falconbridge, Nir Road

RECEIVING WATERBODY: DIRECT: Coniston Creek to Wanapitei River
INDIRECT: 80 km. to Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Converts ore into metallic matte.

EFFLUENT QUALITY: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with Calcium Oxide (quicklime)/ slag granulation water neutralized as well.

DISCHARGE TYPE: Continuous decant flow from main tailings area

COMMENTS:

Installation of tertiary treatment system completed in third quarter. Requirements as of October are Mineral Mining Guidelines as specified in Certificate of Approval. Total metals guideline exceeded on seven occasions. The total metal exceedances are attributed to a drop in metal uptake during winter months through the treatment system. Short circuiting to the final effluent is possible.

Two trout bioassays conducted in 1987 indicated the Nir Road effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001700004 SIC CODE(S): 0592 MOE REGION: Northeast DISTRICT: Sudbury

10/07/88

000170-00-0(4) FALCONBRIDGE LTD., FALCONBRIDGE FALCONBRIDGE REPORT DATE: 15 APR 88

CONTROL POINT: 0300 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 22909 | 2291 | 21273 | 71431 | 26810 | 45491 | 4994 | 3279 | 24873 | 27599 | 27246 | 34045 | 26020.08 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.23 | 0.69 | 0.64 | 2.1 | 0.27 | 0.46 | 0.05 | 0.03 | 0.75 | 1.1 | 0.82 | 1.02 | 0.68 | |
| KG /DAY (CUUT ) | GUIDELINE | 22.909 | 2.291 | 21.273 | 71.431 | 26.81 | 45.491 | 4.994 | 3.279 | 24.873 | 27.599 | 27.246 | 34.045 | 26.02008 | 0 |
| IRON UNF.TOT. | ACTUAL | 18.1 | 2.75 | 16.2 | 47.1 | 13.69 | 25.48 | 2.25 | 2.3 | 3.7 | 6.35 | 7.9 | 24.9 | 14.22666 | |
| KG /DAY (FEUT ) | GUIDELINE | 22.909 | 2.291 | 21.273 | 71.431 | 26.81 | 45.491 | 4.994 | 3.279 | 24.873 | 27.599 | 27.246 | 34.045 | 26.02008 | 1 |
| NICKEL UNF.TOT. | ACTUAL | 26.57 | 2.41 | 24.9 | 52.1 | 13.67 | 12.71 | 1.1 | 0.95 | 7.5 | 14.35 | 20.98 | 28.6 | 17.15333 | |
| KG /DAY (NIUT ) | GUIDELINE | 22.909 | 2.291 | 21.273 | 71.431 | 26.81 | 45.491 | 4.994 | 3.279 | 24.873 | 27.599 | 27.246 | 34.045 | 26.02008 | 3 |
| PH | ACTUAL | 7 | 6.97 | 6.78 | 6.65 | 7.02 | 7.39 | 7.46 | 7.24 | 7.17 | 7.04 | 7.2 | 6.76 | 7.056666 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 137.5 | 24.74 | | 400 | 198.4 | 191.06 | | 8.51 | 124 | 63.48 | 56.67 | 202 | 140.636 | |
| KG /DAY (RSP ) | GUIDELINE | 343.635 | 34.365 | | 1071.46 | 402.15 | 682.365 | | 49.185 | 373.095 | 413.985 | 408.69 | 510.675 | 428.9605 | 0 |
| SULPHATE UNF.REAC | ACTUAL | 10630 | 999 | 8956 | 22644 | 9169 | 16695 | 1943 | 8.51 | 11690 | 12585 | 12424 | 16103 | 10320.54 | |
| KG /DAY (SSO4UR) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | | | | | | | | | | | 0.82 | 1.36 | 1.09 | |
| KG /DAY (ZNUT ) | GUIDELINE | | | | | | | | | | | 27.246 | 34.045 | 30.6455 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Falconbridge Ltd.
& PLANT LOCATION: Kidd Creek Mine Division
Metallurgical Site
Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: man-made ditch
INDIRECT: Porcupine River

DESCRIPTION OF ACTIVITY: Crushed ore is concentrated, smelted and refined into zinc, copper and gold. Sulphuric acid is made from SO2.

EFFLUENT QUALITY: Contains dissolved metal salts of nickel, copper, zinc etc.

EFFLUENT TREATMENT: Effluent is limed and overflow (decant) is discharged.

DISCHARGE TYPE: Continuous

COMMENTS:

The Kidd Creek metallurgical site effluent exceeded the Ontario effluent guidelines for suspended solids on three occasions. No explanation for these exceedances was provided. All other were within the guidelines. Compliance samples collected and analyzed by MOE were generally within 25% variability, excluding those reported near or below detectable limits which cannot be compared.

In late 1987, an elaborate sampling program was conducted, that included numerous parameters along with fish toxicity. Kidd Creek Mines Ltd. was chosen as a site for pre-regulation monitoring for the Ontario Municipal and Industrial Strategy for Abatement (MISA).

In terms of toxicity sampling, one trout bioassay conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 71.9%.

IMIS NUMER: 0000990002 SIC CODES: 0594, 0591, 295 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000099-00-0(2) FALCONBRIDGE LTD, KIDD CREEK MINE DIVISION - MET SITE TIMMINS REPORT DATE: 02 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | ACTUAL | <0.01 | <0.013 | <0.012 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.011 | <0.01 | <0.01 | <0.01 | <0.01 | |
| MG/L (ASUT) | GUIDELINE | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| COPPER | ACTUAL | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | |
| MG/L (CUFT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| IRON FIL.TOT. | ACTUAL | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | |
| MG/L (FEFT ) | REQUIREMENT | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| LEAD | ACTUAL | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | |
| MG/L (PBFT) | GUIDELINE | | | | | | | | | | | | | | |
| MERCURY | ACTUAL | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | |
| UG/L (HGUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| NH3-N FIL.REAC | ACTUAL | 1 | 1.3 | 1.3 | 1.3 | 0.6 | 1 | 0.9 | 0.6 | 0.7 | 0.6 | 0.9 | 1.3 | 0.958 | |
| MG/L (NNH3FR) | GUIDELINE | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 0 |
| PH | ACTUAL | 11 | 11 | 10.4 | 9.3 | 9.2 | 8.3 | 8 | 8.3 | 8.3 | 8.3 | 9.5 | 10.6 | 9.35 | 4 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 30 | 56 | 32 | 11 | 10 | 10 | 10 | 10 | 10 | 12 | 10 | 12 | 17.75 | |
| MG/L (RSP ) | REQUIREMENT | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 3 |
| RESIDUE TOTAL | ACTUAL | 2165 | 2250 | 2125 | 2018 | 2391 | 2538 | 2582 | 2380 | 2274 | 2082 | 1880 | 2042 | 2227 | |
| MG/L (RST ) | REQUIREMENT | | | | | | | | | | | | | | |
| SULPHATE FIL.REAC | ACTUAL | 1113 | 1116 | 1098 | 1084 | 1281 | 1342 | 1319 | 1154 | 1092 | 958 | 835 | 940 | 1111 | |
| MG/L (SSO4FR) | REQUIREMENT | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | <0.1 | <0.1 | <0.1 | 0.2 | <0.1 | <0.1 | 0.2 | 0.2 | 0.3 | 0.6 | <0.1 | 0.2 | <0.09 | |
| MG/L (ZNUT ) | REQUIREMENT | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 TIMES OUT OF 96, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Falconbridge Ltd.
& PLANT LOCATION: Kidd Creek Mine Division
Mine Site
Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT : Kidd Creek
INDIRECT: Moose R.

DESCRIPTION OF ACTIVITY: Mine site ore is crushed for further processing at the metallurgy site.

EFFLUENT QUALITY: Tailings effluent contains dissolved metal salts of nickel, copper, zinc etc..

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous

COMMENTS:

The Kidd Creek Mine Site effluent exceeded the Ontario effluent guidelines for suspended solids and zinc. The guideline for suspended solids was exceeded solids was exceeded on 7 occasions, no explanation was given. The guideline for zinc was exceeded on one occasion because of a high rate of discharge due to precipitation. A study of the receiver (Jocko Creek) will be conducted in 1988 to determine the effect of the discharge upon the receiver.

In 1987, three trout bioassays were conducted and indicated the final effluent to be acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of four days exposure ranged from 24.0% to 45.6%.

IMIS NUMER: 0000990101 SIC CODES: 0594, 0591, 295 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000099-01-0(1) FALCONBRIDGE LTD. KIDD CREEK MINE DIVISION - MINE SITE TIMMINS REPORT DATE: 02 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC | ACTUAL | <0.011 | <0.01 | <0.01 | <0.01 | <0.01 | <0.012 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | |
| MG/L (ASUT) | GUIDELINE | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| COPPER | ACTUAL | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | |
| MG/L (CUFT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| IRON | ACTUAL | <0.01 | <0.01 | <0.01 | <0.012 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.18 | <0.01 | <0.01 | <.01 | |
| MG/L (FEFT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| LEAD | ACTUAL | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | |
| MG/L (PBFT) | GUIDELINE | | | | | | | | | | | | | | |
| MERCURY | ACTUAL | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | |
| UG/L (HGUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| NH3-N FIL.REAC | ACTUAL | 4.8 | 6.2 | 7.07 | 1.14 | 1.1 | 1.07 | 0.71 | 1.01 | 0.9 | 1.08 | 1.46 | 2.9 | 2.45 | |
| MG/L (NNH3FR) | GUIDELINE | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 0 |
| PH | ACTUAL | 10.98 | 10.1 | 11.3 | 11.54 | 11.4 | 11.17 | 10.8 | 11.2 | 11 | 10.1 | 11.07 | 10.8 | 10.96 | |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | 10 |
| RESIDUE PARTIC. | ACTUAL | 16.3 | 10 | 23.7 | 10 | 11 | 21.8 | 13.3 | 23.8 | 16 | 11.8 | 31 | 32 | 18.39 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 7 |
| RESIDUE TOTAL | ACTUAL | 681 | 765 | 925 | 496 | 489 | 534 | 537 | 593 | 567 | 501 | 526 | 573 | 598.91 | |
| MG/L (RST ) | GUIDELINE | | | | | | | | | | | | | | |
| SULPHATE FIL.REAC | ACTUAL | 261 | 292 | 314 | 107 | 91 | 165 | 184 | 174 | 199 | 160 | 137 | 170 | 187.3 | |
| MG/L (SSO4FR) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC | ACTUAL | <0.1 | 0.4 | 0.12 | 0.58 | 0.55 | 0.14 | 0.39 | 0.34 | 0.12 | 1.88 | 0.42 | 0.5 | <0.44 | |
| MG/L (ZNUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

NOTE: PH LIMIT 5.5-10.6. 0* INDICATES INTAKE EXCEEDED DISCHARGE. -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 18 TIMES OUT OF 96. FOR A TOTAL COMPLIANCE RECORD OF 81% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Falconbridge Ltd. - Lockerby Mine
& PLANT LOCATION: Sudbury West

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Vermillion River to Spanish River
INDIRECT: 125 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and separated into tailings and concentrates.

EFFLUENT QUALITY: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Mine water treated by ponds.

DISCHARGE TYPE: Continuous

COMMENTS:

Exceeded upper limit of pH guideline (10.6) for the month of December. This is due to the natural alkalinity of the mine water.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001700202 SIC CODE(S): 0592 MOE REGION: Northeast DISTRICT: Sudbury

10/07/88

000170-02-0(2) LOCKERBY MINE

REPORT DATE: 29 AUG 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 6.55 | 6.55 | 164 | 262 | 196.34 | 75 | 163.6 | 98 | 130 | 160 | 160 | 160 | 131.8366 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.0001 | 0.0001 | 0.003 | 0.005 | 0.002 | 0.002 | 0.002 | 0.001 | 0.001 | 0.005 | 0.005 | 0.005 | 0.0026 | |
| KG /DAY (CUUT ) | GUIDELINE | 0.00655 | 0.00655 | 0.164 | 0.262 | 0.19634 | 0.075 | 0.1636 | 0.098 | 0.13 | 0.16 | 0.16 | 0.16 | 0.131836 | 0 |
| IRON UNF.TOT. | ACTUAL | 0.002 | 0.001 | 0.03 | 0.03 | 0.002 | 0.009 | 0.02 | 0.01 | 0.008 | 0.008 | 0.016 | 0.018 | 0.012833 | |
| KG /DAY (FEUT ) | GUIDELINE | 0.00655 | 0.00655 | 0.164 | 0.262 | 0.19634 | 0.075 | 0.1636 | 0.098 | 0.13 | 0.16 | 0.16 | 0.16 | 0.131836 | 0 |
| NICKEL UNF.TOT. | ACTUAL | 0.002 | 0.001 | 0.01 | 0.02 | 0.01 | 0.011 | 0.02 | 0.012 | 0.012 | 0.02 | 0.021 | 0.01 | 0.012416 | |
| KG /DAY (NIUT ) | GUIDELINE | 0.0065 | 0.0065 | 0.164 | 0.262 | 0.1963 | 0.075 | 0.1636 | 0.098 | 0.13 | 0.16 | 0.16 | 0.16 | 0.131825 | 0 |
| PH | ACTUAL | 7.1 | 8.5 | 10.6 | 10.19 | 10 | 8.66 | 7.66 | 7.52 | 7.6 | 8.2 | 9.2 | 11.5 | 8.894166 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | | 0.002 | 0.754 | | | | | | 0.13 | 0.352 | | 0.77 | 0.4016 | |
| KG /DAY (RSP ) | GUIDELINE | 0.098 | 2.46 | 1.95 | 2.4 | 2.4 | 1.862 | | | 1.95 | 2.4 | | 2.4 | 1.861666 | 0 |
| SULPHATE UNF.REAC | ACTUAL | 3.95 | 2.39 | 50.5 | 64.7 | 78.32 | 31.95 | 89.49 | 52.6 | 64.5 | 87.5 | 88.48 | 58.1 | 56.04 | |
| KG /DAY (SSO4UR) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 53, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Falconbridge Ltd. Moose Lake Wastewater Treatment System

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Moose Lk. to Onaping R. to Vermillion R. to Spanish R.
INDIRECT: 125 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Extraction from ore into Nickel and Copper concentrates which are shipped to the smelter.

EFFLUENT QUALITY: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with limestone slurry prior to discharge.

DISCHARGE TYPE: Continuous

COMMENTS:

The nickel limit is set by the Certificate of Approval at 16,085 kg/day. Exceedance of Mineral Guidelines for Iron (twice). Total metals guideline exceeded monthly. Treatment facilities to be upgraded to meet conditions of C. of A. Lime treatment will be performed as a result of the changes.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001700301 SIC CODE(S): 0592 MOE REGION: Northeast DISTRICT: Sudbury

10/07/88

000170-03-0(1) FALCONBRIDGE LTD., MOOSE LK WWTS ONAPING REPORT DATE: 29 AUG 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 7750 | 14771.3 | 19350 | 26962 | 18786 | 19270 | 1801 | 49 | 319 | 14159 | 13550 | 30630 | 13949.77 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.47 | 0.15 | 0.39 | 1.35 | 0.38 | 0.19 | 0.07 | 0.003 | 0.02 | 0.43 | 0.27 | 0.61 | 0.361083 | |
| KG /DAY (CUUT ) | GUIDELINE | 7.75 | 14.7712 | 19.35 | 26.962 | 18.786 | 19.27 | 1.801 | 0.049 | 0.319 | 14.159 | 13.55 | 30.63 | 13.94976 | 0 |
| IRON UNF.TOT. | ACTUAL | 5.81 | 21.12 | 37.2 | 7.01 | 6.01 | 4.43 | 0.76 | 0.02 | 0.11 | 4.4 | 4.2 | 19.6 | 9.2225 | |
| KG /DAY (FEUT ) | GUIDELINE | 7.75 | 14.7712 | 19.35 | 26.962 | 18.786 | 19.27 | 1.801 | 0.049 | 0.319 | 14.159 | 13.55 | 30.63 | 13.94976 | 2 |
| NICKEL UNF.TOT. | ACTUAL | 19.69 | 37.09 | 50.3 | 46.16 | 42.3 | 36.11 | 3.19 | 0.05 | 0.39 | 20.2 | 23.17 | 64.3 | 28.57916 | |
| KG /DAY (NIUT ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 6.58 | | 6.6 | 6.57 | 6.75 | 7.46 | 7.15 | 7.15 | 6.99 | 6.94 | 7.31 | 7.08 | 6.961818 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 44.18 | 59.08 | 104.5 | 75.49 | | 30.8 | | 0.35 | 1.66 | 33.98 | 2.03 | 79.64 | 43.171 | |
| KG /DAY (RSP ) | GUIDELINE | 116.25 | 221.569 | 290.25 | 404.43 | | 289.05 | | 0.735 | 4.785 | 212.385 | 203.25 | 459.45 | 220.2154 | 0 |
| SULPHATE UNF.REAC | ACTUAL | 3061 | 9793 | 13216 | 3586 | 10013 | 10060 | 949 | 25.28 | 160 | 8254 | 8794 | 19205 | 7259.69 | |
| KG /DAY (SSO4UR) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 45, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Falconbridge Ltd. - Onaping Mine, Onaping Falls

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Onaping River to Vermillion River to Spanish River
INDIRECT: 125 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined and separated into tailings and concentrates.

EFFLUENT QUALITY: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Neutralization with sodium hydroxide.

DISCHARGE TYPE: Continuous from treatment system except for August. Mine shutdown.

COMMENTS:

Exceeded Guideline value for Nickel (December). Total metals guideline exceeded on one occasion. The exceedance was likely caused by short circuiting in the settling pond or particulate carry over.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 45.6% and 64.2%.

IMIS NUMBER: 0001700103 SIC CODE(S): 0592 MOE REGION: Northeast DISTRICT: Sudbury

10/07/88

000170-01-0(3) FALCONBRIDGE LTD., ONAPING MINE ONAPING FALLS REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 409 | 327 | 478 | 569 | 393 | 316 | 32.7 | | 175 | 335 | 327 | 576 | 357.9727 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.004 | | 0.004 | 0.01 | 0.004 | 0.003 | 0.0003 | | 0.004 | 0.003 | 0.0065 | 0.006 | 0.00448 | |
| KG /DAY (CUUT ) | GUIDELINE | 0.409 | | 0.478 | 0.569 | 0.393 | 0.316 | 0.0327 | | 0.175 | 0.335 | 0.327 | 0.576 | 0.36107 | 0 |
| IRON UNF.TOT. | ACTUAL | 0.09 | 0.02 | 0.11 | 0.05 | 0.02 | 0.009 | 0.003 | | 0.01 | 0.02 | 0.026 | 0.052 | 0.037272 | |
| KG /DAY (FEUT ) | GUIDELINE | 0.409 | 0.327 | 0.478 | 0.569 | 0.393 | 0.316 | 0.0327 | | 0.175 | 0.335 | 0.327 | 0.576 | 0.357972 | 0 |
| NICKEL UNF.TOT. | ACTUAL | 0.1 | 0.04 | 0.34 | 0.48 | 0.09 | 0.1 | 0.014 | | 0.08 | 0.12 | 0.12 | 0.95 | 0.221272 | |
| KG /DAY (NIUT ) | GUIDELINE | 0.409 | 0.327 | 0.478 | 0.569 | 0.393 | 0.316 | 0.0327 | | 0.175 | 0.335 | 0.327 | 0.576 | 0.357972 | 1 |
| PH | ACTUAL | 9.43 | 9.52 | 8.8 | 8.95 | 9.22 | 9.17 | 7.54 | 7.7 | 8.98 | 8.7 | 8.6 | 6.59 | 8.6 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 4.46 | 1.31 | 3.4 | 3.07 | 3.85 | 1.64 | | | 1.77 | | 1.96 | 2.19 | 2.627777 | |
| KG /DAY (RSP ) | GUIDELINE | 6.135 | 4.905 | 7.17 | 8.535 | 5.895 | 4.74 | | | 2.625 | | 4.905 | 8.64 | 5.95 | 0 |
| SULPHATE UNF.REAC | ACTUAL | 164 | 181 | 239 | 236 | 199.25 | 195 | 21.09 | | 128 | | 202 | 355 | 192.034 | |
| KG /DAY (SSO4UR) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 53, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Fiberglas Canada Inc.
& PLANT LOCATION: Sarnia

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: Cole Drain
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: insulation is produced from silicate sands

EFFLUENT QUALITY: Contains trace processing agents such as phenols

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance.

IMIS NUMBER: 0000270306 SIC CODE: 3562 MOE REGION: Southwest DISTRICT: Sarnia

06/16/88

000027-03-0(6) FIBERGLAS CANADA INC SARNIA REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 4857 | 6448 | 6380 | 5404 | 5581 | 5174 | 5515 | 4887 | 5163 | 5245 | 5676 | 4957 | 5440.583 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8 | 8.01 | 8.04 | 8.2 | 8.21 | 8.31 | 8.38 | 8.4 | 8.4 | 8.32 | 8.29 | 8.3 | 8.238333 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.02 | 0.05 | 0.03 | 0.06 | 0.013 | 0.012 | 0.002 | 0.03 | 0.01 | 0.04 | 0.04 | 0.05 | 0.02975 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.09714 | 0.12896 | 0.1276 | 0.10808 | 0.11162 | 0.10348 | 0.1103 | 0.09774 | 0.10326 | 0.1049 | 0.11352 | 0.09914 | 0.108811 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Fleet Manufacturing Company Ltd.
Gilmore
Fort Erie

INDUSTRIAL SECTOR: Metals, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Frenchmans Creek to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Fabricator of aircraft parts

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Wastewater treatment consists of pH adjustment and heavy metal removal to sanitary sewer.

DISCHARGE TYPE: continuous

COMMENTS:

Company's cooling water was not in compliance. Company connected process wastewater to municipal sewer system in October 1986. Company completed review of cross-connections between storm and sanitary sewers. Separation and sewer flushing to be completed in fall 1988.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001570001 SIC CODE: 321 MOE REGION: West Central DISTRICT: Welland

09/14/88

000157-00-0(1) FLEET MFG COMPANY LTD FORT ERIE REPORT DATE: 13 SEP 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 929.7 | 1030.8 | 1030.8 | 1030.77 | 1030.8 | 1030.8 | 1030.8 | 1030.77 | 1030.8 | 1030.8 | 1030.8 | 1030.8 | 1022.37 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 0 | 3.76 | 4.13 | 15.74 | 13.2 | 2.73 | 4.49 | 10 | 3.5 | 0 | 0 | 0 | 4.795833 | |
| KG /DAY (BOD5 ) | GUIDELINE | 15.462 | 15.462 | 15.462 | 15.4615 | 15.462 | 15.462 | 15.462 | 15.4615 | 15.462 | 15.462 | 15.462 | 15.462 | 15.462 | 1 |
| CADMIUM UNF.TOT. | ACTUAL | 0.0013 | 0.0017 | 0.001 | 0.0057 | 0.0007 | 0.0007 | 0.0004 | 0.0007 | 0.0004 | 0 | 0 | 0 | 0.00105 | |
| KG /DAY (CDUT ) | GUIDELINE | 0.000929 | 0.001 | 0.001 | 0.001031 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.0008 | 2 |
| CHROMIUM UNF.TOT. | ACTUAL | 0.044 | 0.111 | 0.27 | 0.67 | 0.017 | 0.03 | 0.044 | 0.04 | 0.018 | 0.03 | 0.04 | 0.007 | 0.1101 | |
| KG /DAY (CRUT ) | GUIDELINE | 0.9297 | 1.03 | 1.0308 | 1.03 | 1.03 | 1.0308 | 0.3688 | 1.03077 | 1.0308 | 1.0308 | 1.03 | 1.03 | 0.9669 | 0 |
| LEAD UNF.TOT. | ACTUAL | 0.01 | 0.001 | 0.001 | 0.021 | 0.164 | 0.009 | 0.004 | 0.004 | 0.004 | 0.005 | 0.002 | 0.01 | 0.0196 | |
| KG /DAY (PBUT ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.9 | 7.45 | 7.4 | 7.7 | 7.6 | 7.5 | 7.75 | 7.6 | 7.3 | 7.55 | 7.8 | 7.3 | 7.57 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.041 | 0.048 | 0.025 | 0.052 | 0.467 | 0.007 | 0.011 | 0.007 | 0.007 | 0.02 | 0.007 | 0.037 | 0.06075 | |
| KG /DAY (PPUT ) | GUIDELINE | 0.9297 | 1.03 | 1.0308 | 1.03077 | 1.03 | 0.3688 | 1.03 | 0.368771 | 1.03 | 1.03 | 1.03 | 1.03 | 0.91157 | 0 |
| RESIDUE PARTIC. | ACTUAL | 15.793 | 8.369 | 5.438 | 5.23 | 19.5 | 3.76 | 2.41 | 4.7 | 6.5 | 0.7 | 0 | 0 | 6.033 | |
| KG /DAY (RSP ) | GUIDELINE | 15.462 | 15.462 | 15.462 | 15.4615 | 15.462 | 15.462 | 15.462 | 15.4615 | 15.462 | 15.462 | 15.462 | 15.462 | 15.4619 | 2 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Ford Motor Company
& PLANT LOCATION: Niagara Falls

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufacturing automotive glass.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Conventional secondary sewage treatment plant and oil water separation.

DISCHARGE TYPE: continuous (treated sanitary and contact cooling water)

COMMENTS:

In compliance. A water conservation program is in place.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000020503 SIC CODE: 325 MOE REGION: West Central DISTRICT: Welland

07/19/88

000002-05-0(3) FORD MOTOR COMPANY NIAGARA FALLS REPORT DATE: 13 SEP 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/5400 WELLAND R.

INCLUDES CONTROL POINTS: 0100 0400

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 8554 | 8544 | 8554 | 8554 | 8554 | 8554 | 8554 | 8554 | 4263 | 2977 | 2486 | 2273 | 6701.75 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 33.23 | 28.5 | 8.02 | 30.6 | 19.44 | 80.91 | 18.5549 | 7.61 | 0 | 0 | 8.47 | 72.74 | 25.67290 | |
| KG /DAY (BOD5 ) | GUIDELINE | 128.31 | 128.16 | 128.31 | 128.31 | 128.31 | 128.31 | 128.31 | 128.31 | 63.945 | 44.655 | 37.29 | 34.095 | 100.5262 | 1 |
| IRON UNF.TOT. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0.056 | 0 | 0 | 0 | 0 | 0 | 0 | 0.004666 | |
| KG /DAY (FEUT ) | GUIDELINE | | | | | | | | | | | | | | |
| NH4-N FIL.REAC | ACTUAL | 0.06 | 1.47 | 0 | 0 | 0 | 2.226 | 0.169 | 0.86 | 0 | 0 | 0 | 0 | 0.39875 | |
| KG /DAY (NNH4FR) | GUIDELINE | 85.54 | 85.44 | 85.54 | 85.54 | 85.54 | 85.54 | 85.54 | 85.54 | 42.63 | 29.77 | 24.86 | 22.73 | 67.0175 | 0 |
| KJELDAHL ORGANIC | ACTUAL | 0 | 19.49 | 2.85 | 0 | 0 | 0.958 | 0 | 1.79 | 0 | 0 | 0.177 | 0 | 2.105416 | |
| KG /DAY (NNKFR ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.3 | 7.85 | 7.85 | 7.25 | 7.6 | 7.3 | 7.35 | 7.25 | 7.9 | 7.7 | 8 | 7.65 | 7.583333 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0 | 0 | 0.057 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.63 | 0.140583 | |
| KG /DAY (PPUT ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 0 | 11.46 | 59.94 | 0 | 0 | 0 | 0 | 0 | 0.153 | 0 | 0 | 0 | 5.96275 | |
| KG /DAY (RSP ) | GUIDELINE | 128.31 | 128.16 | 128.31 | 128.31 | 128.31 | 128.31 | 128.31 | 128.31 | 63.945 | 44.655 | 37.29 | 34.095 | 100.5262 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 0.17 | 4.51 | 14.89 | 71.63 | 4.01 | 1.41 | 1.72 | 0 | 0 | 0 | 1.48 | 0.091 | 8.325916 | |
| KG /DAY (SOLEXT) | GUIDELINE | 128.31 | 128.16 | 128.31 | 128.31 | 128.31 | 128.31 | 128.31 | 128.31 | 63.945 | 44.655 | 37.29 | 34.095 | 100.5262 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: FORD Motor Company
& PLANT LOCATION: Oakville

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Automobile and truck assembly plant

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Primary treatment with settling lagoon.

DISCHARGE TYPE: Continuous

COMMENTS:

On December 3, 1986, Halton Regional Council approved the discharge from Ford into the Regional sanitary sewer system. The upgraded chemical pretreatment plant start up on September 11, 1988. Discharge to sanitary sewer is expected to take place on October 11, 1988.

IMIS NO.: 0000020008 SIC CODE: 323 MOE REGION: Central DISTRICT: Halton-Peel

10/05/88

000002-00-0(8) FORD MOTOR COMPANY OF CANADA LIMITED OAKVILLE

CONTROL POINT: 0100 DATA FOR 1987

REPORT DATE: 24 MAY 88

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 13069 | 13126 | 13526 | 13531 | 13721 | 16048 | 13547 | 16315 | 13773 | 13401 | 12963 | 12707 | 13810.58 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 410.4 | 443.5 | 406.9 | 441.9 | 420.6 | 478 | 286.6 | 141.8 | 72.2 | 140.5 | 339.9 | 253.4 | 319.6416 | |
| KG /DAY (BOD5 ) | GUIDELINE | 196.035 | 196.89 | 202.89 | 202.965 | 205.815 | 240.72 | 203.205 | 244.725 | 206.595 | 201.015 | 194.445 | 190.605 | 207.1587 | 9 |
| CHROMIUM UNF.TOT. | ACTUAL | 1.81 | 1.64 | 2.74 | 0.39 | 0.32 | 0.31 | 1.14 | 1.6 | 0.91 | 0.29 | 0.25 | 0.83 | 1.019166 | |
| KG /DAY (CRUT ) | GUIDELINE | 13.069 | 13.126 | 13.526 | 13.531 | 13.721 | 16.048 | 13.547 | 16.315 | 13.773 | 13.401 | 12.963 | 12.707 | 13.81058 | 0 |
| PH | ACTUAL | 7.1 | 7 | 7.1 | 7.1 | 7 | 7.2 | 7.2 | 7.1 | 7 | 7.1 | 7 | 7 | 7.075 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.1 | 0.27 | 0.1 | 0.31 | 0.2 | 0.36 | 0.26 | 0.75 | 0.23 | 0.55 | 0.81 | 1.12 | 0.421666 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.26138 | 0.26252 | 0.2705 | 0.27062 | 0.27442 | 0.32096 | 0.27094 | 0.3263 | 0.27546 | 0.26802 | 0.25926 | 0.25414 | 0.27621 | 7 |
| PHOSPHOR UNF.TOT. | ACTUAL | 10.3 | 15.4 | 22.1 | 11 | 9.6 | 6 | 7.7 | 8.5 | 6.02 | 6.6 | 9.1 | 14.5 | 10.56833 | |
| KG /DAY (PPUT ) | GUIDELINE | 13.069 | 13.126 | 13.526 | 13.531 | 13.721 | 16.048 | 13.547 | 16.315 | 13.773 | 13.401 | 12.963 | 12.707 | 13.81058 | 3 |
| RESIDUE PARTIC. | ACTUAL | 261 | 223.2 | 225.9 | 378.9 | 411.3 | 664.4 | 717.1 | 463.6 | 300.5 | 301.7 | 407.8 | 359.3 | 392.8916 | |
| KG /DAY (RSP ) | GUIDELINE | 196.035 | 196.89 | 202.89 | 202.965 | 205.815 | 240.72 | 203.205 | 244.725 | 206.595 | 201.015 | 194.445 | 190.605 | 207.1587 | 12 |
| SOLVENT EXTRACT. | ACTUAL | 0 | 12.9 | 1.5 | 3.9 | 13.2 | 43.5 | 62.6 | 17.3 | 13.8 | 13.2 | 16.9 | 6.5 | 17.10833 | |
| KG /DAY (SOLEXT) | GUIDELINE | 196.035 | 196.89 | 202.89 | 202.965 | 205.815 | 240.72 | 203.205 | 244.725 | 206.595 | 201.015 | 194.445 | 190.605 | 207.1587 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 31 TIMES OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 63% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Ford Motor Company Ltd.
Assembly Plant
St. Thomas

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Dodd Creek to Kettle Creek
INDIRECT: 38 Km to Lake Erie

DESCRIPTION OF ACTIVITY: Auto painting and assembly.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Domestic - Aerated activated sludge plant Industrial - Chemical batch followed by biological treatment and rapid sand filtration.

DISCHARGE TYPE: Intermittent through an on-shore outfall; weekend flow and pollutants drop off.

COMMENTS:

Company discontinued reporting Total Solids February 1987. Company has a consultant studing the phosphorus and zinc discharge problems. Discharge requirement for zinc has been changed to 0.2 mg/L.

IMIS NUMBER: 0000020404 SIC CODE: 323 MOE REGION: Southwest DISTRICT: London

05/30/88

000002-04-0(4) FORD MOTOR COMPANY OF CANADA LIMITED BOX 2005 ST THOMAS REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 5003 | 5008 | 1257.56 | 1235 | 1213 | 2479 | 2221 | 2363 | 2884 | 2652 | 2427 | 2080 | 2568.546 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 12 | 19.5 | 3.89 | 4.4 | 2.1 | 3.4 | 7.7 | 2.8 | 4 | 3.7 | 3.6 | 11.6 | 6.5575 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 50.03 | 50.08 | 12.5756 | 12.35 | 12.13 | 24.79 | 22.21 | 23.63 | 28.84 | 26.52 | 24.27 | 20.8 | 25.68546 | 0 |
| CHEM. OX DEMAND | ACTUAL | 234.1 | 319.5 | 66.2 | 57.9 | 39.5 | 50.8 | 53.3 | 36.8 | 42 | 48.5 | 55 | 78.6 | 90.18333 | |
| KG /DAY (COD ) | REQUIREMENT | 500.3 | 500.8 | 125.756 | 123.5 | 121.3 | 247.9 | 222.1 | 236.3 | 288.4 | 265.2 | 242.7 | 208 | 256.8546 | 0 |
| CHROMIUM UNF.TOT. | ACTUAL | 0.25 | 0.65 | 0.06 | 0.03 | 0.04 | 0.12 | 0.11 | 0.09 | 0.14 | 0.15 | 0.07 | 0.06 | 0.1475 | |
| KG /DAY (CRUT ) | REQUIREMENT | 1.0006 | 1.0016 | 0.251511 | 0.247 | 0.2426 | 0.4958 | 0.4442 | 0.4726 | 0.5768 | 0.5304 | 0.4854 | 0.416 | 0.513709 | 0 |
| NH3-N TOTAL | ACTUAL | 0.5 | 0.8 | 0.45 | 1.6 | 0.01 | 0.02 | 0.15 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.3025 | |
| KG /DAY (NNHTFR) | REQUIREMENT | 25.015 | 25.04 | 6.28779 | 6.175 | 6.065 | 12.395 | 11.105 | 11.815 | 14.42 | 13.26 | 12.135 | 10.4 | 12.84273 | 0 |
| PH | ACTUAL | 7.4 | 7.3 | 7.3 | 7.2 | 7.5 | 7.5 | 8.6 | 7.5 | 7.5 | 7.6 | 7.3 | 7.3 | 7.5 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| PO4 FIL.REAC | ACTUAL | 7 | 9.5 | 2.01 | 0.97 | 0.67 | 1.33 | 1.5 | 0.6 | 1.6 | 3.9 | 0.77 | 0.39 | 2.52 | |
| KG /DAY (PPO4FR) | REQUIREMENT | 5.003 | 5.008 | 1.25756 | 1.235 | 1.213 | 2.479 | 2.221 | 2.363 | 2.884 | 2.652 | 2.427 | 2.08 | 2.568546 | 4 |
| RESIDUE PARTIC. | ACTUAL | 5.9 | 69.1 | 9.05 | 7.2 | 4.9 | 14.3 | 11.1 | 6.1 | 11.5 | 19 | 4.6 | 8.73 | 14.29 | |
| KG /DAY (RSP ) | REQUIREMENT | 75.045 | 75.12 | 18.8634 | 18.525 | 18.195 | 37.185 | 33.315 | 35.445 | 43.26 | 39.78 | 36.405 | 31.2 | 38.5282 | 0 |
| ZINC UNF.TOT. | ACTUAL | 0.05 | 0.65 | 0.28 | 0.08 | 0.13 | 0.47 | 0.14 | 0.14 | 0.37 | 0.26 | 0.36 | 0.41 | 0.278333 | |
| KG /DAY (ZNUT ) | REQUIREMENT | 0.30018 | 0.30048 | 0.075454 | 0.0741 | 0.07278 | 0.14874 | 0.13326 | 0.14178 | 0.17304 | 0.15912 | 0.14562 | 0.1248 | 0.154112 | 10 |

NOTE: PH LIMIT 6.5-8.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 14 TIMES OUT OF 96, FOR A TOTAL COMPLIANCE RECORD OF 85% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME:: Ford Motor Co. of Canada Ltd.
& PLANT LOCATION: Windsor

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Engine block and parts are cast in the iron foundry; parts are machined and assembled into engines and transmissions.

EFFLUENT QUALITY: Contains iron, phenol and suspended solids.

EFFLUENT TREATMENT: Chemical coagulation, oil removal and sedimentation.

DISCHARGE TYPE: continuous six days a week through a submerged outfall

COMMENTS:

Phenols and suspended solids not in compliance. Modifications to existing wastewater treatment facilities to improve suspended solids removal under construction. Completion expected September 1988, and compliance December 1988. Requirement for phenol being reassessed in light of results of speciation study. First phase of a treatment program to achieve compliance, water recycling system for phenol waste streams, under design.

IMIS NUMBER: 0000020107 SIC CODE: 294, 325 MOE REGION: Southwest DISTRICT: Windsor

09/01/88

000002-01-0(7) FORD MOTOR COMPANY OF CANADA, LIMITED WINDSOR REPORT DATE: 31 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 85321 | 88940 | 74095 | 73730 | 74251 | 77238 | 44984 | 77076 | 78786 | 77845 | 77872 | 70687 | 75068.75 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHEM. OX DEMAND | ACTUAL | 2368 | 2655 | 2319 | 2662 | 2855 | 2866 | 2740 | 3187 | 1845 | 1849 | 1449 | 1455 | 2354.166 | |
| KG /DAY (COD ) | GUIDELINE | | | | | | | | | | | | | | |
| IRON UNF.TOT. | ACTUAL | 173 | 192 | 188 | 126 | 104 | 111 | 27 | 64 | 59 | 76 | 82 | 102 | 108.6666 | |
| KG /DAY (FEUT ) | REQUIREMENT | 1450.46 | 1511.98 | 1259.61 | 1253.41 | 1262.27 | 1313.05 | 764.728 | 1310.29 | 1339.36 | 1323.36 | 1323.82 | 1201.68 | 1276.168 | 0 |
| FLUORIDE UNF.TOT. | ACTUAL | 636 | 728 | 563 | 547 | 509 | 538 | 101 | 464 | 476 | 471 | 367 | 467 | 488.9166 | |
| KG /DAY (FFIDUT) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8.06 | 8.07 | 8.22 | 7.94 | 7.91 | 7.92 | 8.03 | 7.93 | 7.82 | 8.02 | 8.14 | 7.98 | 8 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 70 | 81 | 58 | 38 | 25 | 17 | 3 | 10.6 | 13.2 | 27 | 40 | 39.7 | 35.20833 | |
| KG /DAY (PHNOL ) | GUIDELINE | 1.70642 | 1.7788 | 1.4819 | 1.4746 | 1.48502 | 1.5448 | 0.899679 | 1.54152 | 1.57572 | 1.5569 | 1.5574 | 1.41374 | 1.501374 | 12 |
| RESIDUE PARTIC. | ACTUAL | 4607 | 5737 | 5594 | 4962 | 4047 | 3633 | 1350 | 2582 | 2776 | 3231 | 3411 | 5302 | 3936 | |
| KG /DAY (RSP ) | GUIDELINE | 1279.81 | 1334.1 | 1111.42 | 1105.95 | 1113.76 | 1158.57 | 674.76 | 1156.14 | 1181.79 | 1167.67 | 1168.08 | 1060.3 | 1126.029 | 12 |
| RESIDUE TOTAL | ACTUAL | 27968 | 27349 | 24518 | 22635 | 19157 | 18978 | 8354 | 17342 | 17557 | 17531 | 18541 | 16081 | 19667.58 | |
| KG /DAY (RST ) | GUIDELINE | | | | | | | | | | | | | | |
| SOLVENT EXTRACT. | ACTUAL | 346 | 456 | 415 | 560 | 677 | 705 | 543 | | | 594 | 554 | 324 | 431.1666 | |
| KG /DAY (SOLEXT) | GUIDELINE | 1279.81 | 1334.1 | 1111.4 | 1105.95 | 1113.76 | 1158.51 | 674.76 | | | 1167.67 | 1168 | 1060.3 | 931.1883 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 24 TIMES OUT OF 58, FOR A TOTAL COMPLIANCE RECORD OF 59% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Fraser Inc.
& PLANT LOCATION: Thorold

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek
INDIRECT: 12 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Fine paper is made from pulp and from deinked ledger paper.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Activated sludge plant on deinking effluent removes organics attributed by ink by biological degradation. Clarifier on total mill effluent removes solids. Some clarified effluent is recycled to the mill.

DISCHARGE TYPE: continuous through an outfall

COMMENTS:

Company has complied with previous Control Order requiring construction of secondary treatment system. Process upsets including equipment breakdown account for exceedances. Target loads set by Pulp and Paper Committee consistent with Best Practicable Technology. BOD5 loading established by Best Available Technology (BAT) which is consistent with secondary treatment.

This mill's final treated effluent is toxic to fish. Three trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 3.2% to 80.6%.

IMIS NUMBER: 0000940007 SIC CODE: 271 MOE REGION: West Central DISTRICT: Welland

09/26/88

000094-00-0(7) FRASER INCORPORATED — THOROLD — REPORT DATE: 13 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 29987 | 27550 | 24581 | 24366 | 25589 | 24157 | 24382 | 25076 | 26683 | 27416 | 24828 | 25462 | 25839.75 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 2219 | 1873 | 1524 | 1925 | 1990 | 1981 | 2292 | 2282 | 2615 | 2867 | 2359 | 2991 | 2243.166 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 1810 | 11 |

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDUE FILTERED | ACTUAL | 11845 | 9283 | 6440 | 7992 | 11669 | 10798 | 10289 | 11435 | 10593 | 10617 | 7296 | 10114 | 9864.25 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 1020 | 1488 | 1106 | 439 | 947 | 483 | 1097 | 802 | 934 | 990 | 866 | 833 | 917.0833 | |
| KG /DAY (RSP ) | GUIDELINE | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 1500 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 54% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Gay Lee Foods Co-op Ltd.
& PLANT LOCATION: Teeswater

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Teeswater R.
INDIRECT: Lake Huron

DESCRIPTION OF ACTIVITY: Milk is made into butter and/or dried.

EFFLUENT QUALITY: Contains organic compounds such as proteins, sugars etc.

EFFLUENT TREATMENT: Secondary

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance.

IMIS NUMBER: 0001000009 SIC CODE: 104 MOE REGION: Southwest DISTRICT: Owen Sound

09/06/88

000100-00-0(9) GAY LEE FOODS COOPERATIVE LIMITED TEESWATER REPORT DATE: 01 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 24.5 | 17.5 | 17.5 | 23.33333 | |
| M3 /DAY (FTFLOW) | GUIDELINE | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 0 |
| BOD 5 DAY | ACTUAL | 0.159 | 0.086 | 0.086 | 0.058 | 0.245 | 0.123 | 0.221 | 0.196 | 0.118 | 0.065 | 0.058 | 0.047 | 0.121833 | |
| KG /DAY (BOD5 ) | GUIDELINE | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 0 |
| PH | ACTUAL | 7.9 | 7.66 | 7.49 | 7.294 | 7.475 | 7.63 | 7.45 | 7.58 | 7.364 | 7.45 | 7.44 | 7.43 | 7.513583 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 0.235 | 0.081 | 0.4 | 0.129 | 0.519 | 0.257 | 0.505 | 0.228 | 0.118 | 0.209 | 0.142 | 0.072 | 0.24125 | |
| KG /DAY (RSP ) | GUIDELINE | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: General Chemical Canada Ltd (formerly: Allied Chemical Canada Inc.) Amherstburg.

INDUSTRIAL SECTOR: Inorganic Chemicals

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Soda ash (sodium carbonate) is made from table salt (sodium chloride).

EFFLUENT QUALITY: Contains inorganic salts (chlorides, carbonates).

EFFLUENT TREATMENT: By-product recovery and sedimentation.

DISCHARGE TYPE: continuous

COMMENTS:

Company in compliance with current requirements. Total allowable chloride discharges = $2.36 \times 10^8$ kilograms per year, with a daily maximum of $1.361 \times 10^6$ kilograms per day.

IMIS NUMBER: 0000010009 SIC CODE: 378 3782 MOE REGION: Southwest DISTRICT: Windsor

09/14/88

000001-00-0(9) GENERAL CHEMICAL CANADA INC. AMHERSTBURG REPORT DATE: 31 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 16768 | 15739 | 15863 | 14870 | 9049 | 13789 | 14142 | 13749 | 18573 | 14060 | 14393 | 15132 | 14677.25 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHLORIDE UNF.REAC | ACTUAL | 734000 | 687000 | 713000 | 588000 | 447000 | 629000 | 646000 | 600000 | 710000 | 668000 | 624000 | 585000 | 635916.6 | 0 |
| KG /DAY (CLIDUR) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | |
| FLUORIDE UNF.TOT. | ACTUAL | 46 | 52 | 71.1 | 52 | 28 | 59 | 51 | 60 | 91 | 51 | 37 | 54 | 54.34166 | |
| KG /DAY (FFIDUT) | REQUIREMENT | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 0 |
| NH3-N TOTAL | ACTUAL | 520 | 367 | 420 | 310 | 200 | 167 | 162 | 244 | 269 | 417 | 369 | 326 | 314.25 | |
| KG /DAY (NNHTUR) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 126 | 126 | 164 | 149 | 132 | 151 | 133 | 119 | 215 | 173 | 173 | 253 | 159.5 | |
| KG /DAY (RSP ) | GUIDELINE | 251.52 | 236.085 | 237.945 | 223.05 | 135.735 | 206.835 | 212.13 | 206.235 | 278.595 | 210.9 | 215.895 | 226.98 | 220.1587 | 1 |
| RESIDUE TOTAL | ACTUAL | 1283000 | 1145000 | 1197000 | 988000 | 776000 | 1124000 | 1174000 | 1071000 | 1299000 | 1198000 | 1096000 | 993000 | 1112000 | |
| KG /DAY (RST ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-12.0, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1987.

000001-00-0(9) GENERAL CHEMICAL CANADA INC. AMHERSTBURG REPORT DATE: 24 MAY 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 114282 | 117139 | 107239 | 125394 | 134028 | 155256 | 163802 | 162515 | 142739 | 108513 | 113735 | 110884 | 129627.1 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHLORIDE UNF.REAC | ACTUAL | 9000 | 11000 | 11600 | 10917 | 6159 | 7281 | 4651 | 6496 | 5893 | 7672 | 15213 | 8158 | 8670 | 0 |
| KG /DAY (CLIDUR) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | |
| RESIDUE PARTIC. | ACTUAL | 463 | 882 | 792 | 1161 | 430 | 622 | 221 | 378 | 934 | 2103 | 1748 | 1031 | 897.0833 | |
| KG /DAY (RSP ) | GUIDELINE | 1714.23 | 1757.08 | 1608.58 | 1880.91 | 2010.42 | 2328.84 | 2457 | 2437.72 | 2141.08 | 1627.69 | 1706.02 | 1663.26 | 1944.402 | 2 |
| RESIDUE TOTAL | ACTUAL | 19000 | 23000 | 25600 | 26904 | 18081 | 16565 | 10271 | 13971 | 19434 | 19191 | 31891 | 22365 | 20522.75 | |
| KG /DAY (RST ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: General Motors of Canada Ltd. St. Catharines

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Welland Canal
INDIRECT: 9.2 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Coke and iron (pigs and scrap) are charged to a cupola to be processed into iron and cast as engine parts.

EFFLUENT QUALITY:

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous for five days a week through an outfall

COMMENTS:

Compliance expected in 1988 upon installation of phenol treatment system. Section 24 OWRA application submitted.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001630003 SIC CODE: 323 MOE REGION: West Central DISTRICT: Welland

07/19/88

000163-00-0(3) GENERAL MOTORS OF CANADA LTD. ST CATHARINES REPORT DATE: 13 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 125400 | 130000 | 134600 | 136100 | 134700 | 143712 | 146931 | 111054 | 138218 | 140383 | 135721 | 132592 | 134117.5 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 75.269 | 126.798 | 169.562 | 210.941 | 100.99 | 114.97 | 257.129 | 115.496 | 1167.94 | 210.575 | 169.651 | 66.296 | 232.1347 | |
| KG /DAY (BOD5 ) | GUIDELINE | 1881 | 1950 | 2019 | 2041.5 | 2020.5 | 2155.68 | 2203.96 | 1665.81 | 2073.27 | 2105.7 | 2035.81 | 1988.88 | 2011.759 | 0 |
| NH3-N TOTAL | ACTUAL | 10.349 | 50.069 | 57.597 | 85.057 | 23.564 | 20.982 | 67.956 | 23.766 | 31.099 | 27.726 | 0 | 0 | 33.18041 | |
| KG /DAY (NNHTFR) | GUIDELINE | | | | | | | | | | | | | | |
| K'DAHL N TOTAL | ACTUAL | 0 | 87.783 | 67.287 | 193.93 | 10.099 | 68.982 | 160.889 | 48.864 | 31.099 | 91.249 | 22.055 | 43.092 | 68.77741 | |
| KG /DAY (NNTKFR) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.627 | 19.345 | 14.668 | 1.293 | 21.746 | 1.897 | 0.882 | 0.2443 | 2.177 | 1.72 | 4.004 | 0.464 | 5.755608 | |
| KG /DAY (PHNOL ) | GUIDELINE | 2.508 | 2.6 | 2.692 | 2.722 | 2.694 | 2.87424 | 2.93862 | 2.22108 | 2.76436 | 2.80766 | 2.71442 | 2.65184 | 2.682351 | 4 |
| PHOSPHOR UNF.TOT. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| KG /DAY (PPUT ) | GUIDELINE | 125.4 | 130 | 134.6 | 136.1 | 134.7 | 143.712 | 146.931 | 111.054 | 138.218 | 140.383 | 135.721 | 132.592 | 134.1175 | 0 |
| RESIDUE FILTERED | ACTUAL | 1254.48 | 3993.98 | 2449.23 | 2994 | 3231.67 | 3477.83 | 2461.04 | 688.535 | 3939.21 | 3685.05 | 712.535 | 1392.21 | 2523.314 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 1913.082 | 227.586 | 107.658 | 0 | 0 | 158.083 | 1535.43 | 2110.02 | 1036.63 | 0 | 441.093 | 430.924 | 663.3755 | |
| KG /DAY (RSP ) | GUIDELINE | 1881 | 1950 | 2019 | 2041.5 | 2020.5 | 2155.68 | 2203.96 | 1665.81 | 2073.27 | 2105.7 | 2035.81 | 1988.88 | 2011.759 | 2 |
| SOLVENT EXTRACT. | ACTUAL | 37.634 | 0 | 32.298 | 0 | 0.236 | 0.057 | 0.257 | 0.0222 | 12.094 | 0.316 | 0 | 66.796 | 12.47585 | |
| KG /DAY (SOLEXT) | GUIDELINE | 1881 | 1950 | 2019 | 2041.5 | 2020.5 | 2155.68 | 2203.96 | 1665.81 | 2073.27 | 2105.7 | 2035.81 | 1988.88 | 2011.759 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Giant Yellowknife Mines Ltd. - Pamour Mine (previously reported as Pamour Porcupine Mines) Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: nameless creek
INDIRECT: Porcupine River

DESCRIPTION OF ACTIVITY: Gold is recovered by the Merryl-Crowe process.

EFFLUENT QUALITY: Contains cyanide, copper, lead, nickel.

EFFLUENT TREATMENT: none

DISCHARGE TYPE: Continuous

COMMENTS:

In 1987 a leap leaching facility was constructed at the site in addition to the exisiting operation. A Certificate of Approval was obtained for the operation in September of 1987. This certificate ensures that effluent discharge must meet required criteria rather than guidelines. In 1987, 6 exceedances for the iron guideline were noted prior to the issuance of the C. of A. After the certificate was issued the criteria of 1.0 mg/L was exceeded twice. The company appealed conditions on effluent criteria, toxicity and sampling. Thses were resolved to the satisfaction of both the company and the Ministry. Audit samples taken on 6 occasions in 1987 indicated that 89% of the parameters were within 25% of MOE results. The company has undertaken a revision of sampling and analytical techniques.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001090109 SIC CODE: 0591 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000109-01-0(9) GIANT YELLOWKNIFE MINES LTD, PAMPOUR SITE TIMMINS REPORT DATE: 24 MAY 88

CONTROL POINT: 0400 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CYANIDE AVAIL | ACTUAL | 0.095 | 0.14 | 0.06 | 0.12 | 0.09 | 0.11 | 0.07 | 0.125 | 0.083 | 0.013 | 0.38 | 0.055 | 0.11175 | |
| MG/L (CCNAUR) | GUIDELINE | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 |
| COPPER UNF.TOT. | ACTUAL | 0.02 | 0.03 | 0.02 | 0.05 | 0.03 | 0.04 | 0.06 | 0.518 | 0.016 | 0.025 | 0.089 | 0.031 | 0.077416 | |
| MG/L (CUUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| IRON UNF.TOT. | ACTUAL | 0.41 | 1.04 | 2.26 | 2.18 | 1.58 | 1.11 | 0.9 | 3.005 | 0.499 | 1.82 | 1.788 | 0.723 | 1.442916 | |
| MG/L (FEUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 |
| NICKEL UNF.TOT. | ACTUAL | 0.04 | 0.078 | 0.03 | 0.12 | 0.09 | 0.04 | 0.06 | 0.041 | 0.009 | 0.044 | 0.279 | 0.059 | 0.074166 | |
| MG/L (NIUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| LEAD UNF.TOT. | ACTUAL | 0.01 | 0.03 | 0.1 | 0.07 | 0.04 | 0.03 | 0.04 | 0.025 | 0.013 | 0.013 | 0.02 | 0.031 | 0.035166 | |
| MG/L (PBUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| PH | ACTUAL | 7.25 | 7 | 7.27 | 6.58 | 7.08 | 7.5 | 7.66 | 7.45 | 7.43 | 7.55 | 7.33 | 6.95 | 7.254166 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | 0.03 | 0.04 | 0.04 | 0.18 | 0.03 | 0.04 | 0.07 | 0.039 | 0.075 | 0.046 | 0.035 | 0.056 | 0.05675 | |
| MG/L (ZNUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 TIMES OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Giant Yellowknife Mines Ltd. - Schumacher Mine (previously reported as Pamour Porcupine Mines) Timmins

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT : Swamp
INDIRECT: North Porcupine River

DESCRIPTION OF ACTIVITY: Gold Mining using the Merryl-Crowe process.

EFFLUENT QUALITY: Cyanide, copper, zinc and nickel in effluent.

EFFLUENT TREATMENT: None

DISCHARGE TYPE: Continuous

COMMENTS:

In response to previous unacceptable discharge results the company obtained a Certificate of Approval in September, 1987 to segregate barren bleed and cyanide tails to a tailings area where no discharge would occur. At the time of issuance, the C. of A. incorporated the mining guideline effluent criteria as a requirement. To minimize impact to the receiving stream and to maximimize natural degradation there was no discharge for the months of August and December. Discharge occurred for 9 days during October and 17 days in November. The company intends to combine future discharges with the new ERG Resourcess tailings reclamation project. This project will have the INCO air/$SO_2$ destruct treatment system in place. A total of 4 compliance samples taken in 1987 indicated that 70% of the parameters were within 25% of MOE results. The company is reviewing sampling and analytical techniques to obtain greater accurracy.

Three bioassays conducted in 1987 indicated that it would take, statisically, 10%, 18.6% and 2.6% final effluent to kill 50% of the test fish by the end of the four day exposure.

IMIS NUMBER: 0001090000 SIC CODE: 0592 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000109-00-0(0) GIANT YELLOWKNIFE MINES LTD. SCHUMACHER DIVISION TIMMINS

REPORT DATE: 24 MAY 88

CONTROL POINT: 0400 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CYANIDE AVAIL | ACTUAL | 0.02 | 0.08 | 1.73 | 4.65 | 4.23 | 4.67 | 2.87 | 0.1 | 0.015 | 0.025 | 0.425 | 0.1 | 1.57625 | |
| MG/L (CCNAUR) | GUIDELINE | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 4 |
| COPPER UNF.TOT. | ACTUAL | 3.65 | 2.57 | 4.3 | 5.57 | 11.2 | 14.69 | 11.59 | 0.1 | 2.65 | 3.058 | 3.058 | 0.1 | 5.211333 | 10 |
| MG/L (CUUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| IRON UNF.TOT. | ACTUAL | 1.78 | 0.28 | 0.7 | 0.15 | 0.17 | 0.28 | 0.61 | 0.1 | 0.15 | 0.158 | 0.137 | 0.1 | 0.384583 | |
| MG/L (FEUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| NICKEL UNF.TOT. | ACTUAL | 0.4 | 0.28 | 0.37 | 0.29 | 0.29 | 0.16 | 0.36 | 0.1 | 0.265 | 0.284 | 0.328 | 0.1 | 0.268916 | |
| MG/L (NIUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| LEAD UNF.TOT. | ACTUAL | 0.001 | 0.04 | 0.03 | 0.02 | 0.06 | 0.05 | 0.07 | 0.1 | 0.08 | 0.073 | 0.066 | 0.1 | 0.0575 | |
| MG/L (PBUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| PH | ACTUAL | 7.35 | 7.47 | 7.96 | 9.06 | 9.2 | 9.05 | 8.6 | 8.65 | 8.5 | 8.28 | 8.28 | | 7.7 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | 0.285 | 0.17 | 0.3 | 0.02 | 0.04 | 0.16 | 0.03 | 0.1 | 0.17 | 0.06 | 0.088 | 0.1 | 0.126916 | |
| MG/L (ZNUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 15 TIMES OUT OF 83, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Golden Shield Resources - Kerr Division (previously reported as Kerr Addison Mines) Virginiatown

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Larder Lake to Larder R.
INDIRECT: Ottawa R.

DESCRIPTION OF ACTIVITY: Gold mining and recovery using a cyanide circuit.

EFFLUENT QUALITY: Contains arsenic, cyanide, copper, iron, nickel, dissolved solids and zinc.

EFFLUENT TREATMENT: Tailings, Barren Solution Pond.

DISCHARGE TYPE: Continuous

COMMENTS:

The conditional Certificate of Approval issued in 1984 (Condition 4) allows the company until October 31, 1988 to meet the Ministry effluent requirements. A consultant has been retained by the company to design a treatment system and such system must be in place by Oct 31, 1988. Any exceedances after that date will be referred to IEB for investigation. In 1987 there were exceedances in arsenic (9), cyanide (8), copper (3), nickel (11), iron (4), suspended solids (2). Exceedances of cumalative metal total (11) also occurred.

Four trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 11.0% to 25.5%.

IMIS NUMER: 0001350008 SIC CODE: 052 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000135-00-0(8) GOLDEN SHIELD RESOURCES - KERR DIVISION VIRGINIATOWN REPORT DATE: 30 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC UNF.TOT. | ACTUAL | | 1.4 | 2.1 | | | 0.9 | 0.96 | 0.97 | 2.8 | 1.15 | 1.3 | 0.82 | 1.37 | |
| MG/L (ASUT ) | GUIDELINE | | 0.5 | 0.5 | | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 9 |
| CYANIDE AVAIL | ACTUAL | | 4.2 | 4.9 | | | 1.6 | 2.4 | 2.2 | 5.5 | 7.3 | 7.3 | 8.9 | 4.922 | |
| MG/L (CCNAUR) | GUIDELINE | | 2 | 2 | | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 8 |
| COPPER UNF.TOT. | ACTUAL | | 0.48 | 0.63 | 0.76 | 1.04 | 0.74 | 0.58 | 0.58 | 0.9 | 0.99 | 1.14 | 1.01 | 0.8045 | |
| MG/L (CUUT) | GUIDELINE | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 3 |
| IRON UNF.TOT. | ACTUAL | | 0.49 | 0.57 | 0.71 | 0.56 | 1.26 | 0.48 | 0.25 | 1.1 | 1.04 | 1.15 | 0.74 | 0.759 | |
| MG/L (FEUT) | GUIDELINE | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 |
| NICKEL UNF.TOT. | ACTUAL | | 1.07 | 1.07 | 1.46 | 1.89 | 1.61 | 1.49 | 1.7 | 2.78 | 3.87 | 4.52 | 2.95 | 2.219 | |
| MG/L (NIUT) | GUIDELINE | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 11 |
| PH | ACTUAL | | 9.63 | 9.6 | 9.4 | 9.03 | 8.64 | 8.8 | 9.12 | 9.9 | | 8.53 | 9.26 | 9.191 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | | | 4.2 | 4.9 | 4 | 15 | 9 | 13.4 | 9.7 | 21.5 | 24 | 14 | 11.97 | |
| MG/L (RSP ) | GUIDELINE | | | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 2 |
| ZINC UNF.TOT. | ACTUAL | | 0.3 | 0.33 | 0.32 | 0.83 | 0.58 | 0.15 | 0.25 | 0.31 | 0.43 | 0.49 | 0.55 | 0.413 | |
| MG/L (ZNUT) | GUIDELINE | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 37 TIMES OUT OF 82, FOR A TOTAL COMPLIANCE RECORD OF 55% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Great Lakes Forest Products Ltd.
Dryden Division,
Dryden

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Wabigoon River
INDIRECT: Winnipeg River

DESCRIPTION OF ACTIVITY: Kraft bleached pulp and fine papers uncoated are made from softwoods (jack pine, black spruce).

EFFLUENT QUALITY: Contains suspended solids (bark, wood and paper fines etc.) and chemicals from pulping and bleaching liquors (chlorinated compounds).

EFFLUENT TREATMENT: No solids from dry woodroom (debarking). Use of a continuous digester and enclosed diffusion washers results in few spills with much less solids and dissolved organics in wastewaters from the processes. Foul condensates are steam stripped to remove odourous organic compounds. Total effluent is treated by a clarifier prior to biological treatment (aeration lagoon), settling lagoons and a foam barrier.

DISCHARGE TYPE: Continuous through a submerged diffuser.

COMMENTS:

There were no exceedances of the total suspended solids requirement.

Three trout bioassays conducted in 1987 indicated the final effluent to have been acutely lethal to test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of four days exposure ranged from 4.6% to 71.9%. Data reported from the company indicate a reduction in effluent toxicity.

IMIS NUMBER: 0000840108 SIC CODE: 271 MOE REGION: Northwest DISTRICT: Kenora

08/25/88

000084-01-0(8) GREAT LAKES FOREST PRODUCTS DRYDEN DIVISION DRYDEN

REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 72000 | 71000 | 72000 | 76000 | 79000 | 90000 | 98000 | 100000 | 93000 | 92000 | 87000 | 75000 | 83750 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 2600 | 2500 | 2500 | 2200 | 1600 | 2000 | 2100 | 2000 | 2000 | 3300 | 2200 | 1900 | 2241.666 | |
| KG /DAY (BOD5 ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 3700 | 3700 | 5500 | 5000 | 3200 | 4000 | 3900 | 3500 | 3800 | 4500 | 4100 | 3600 | 4041.666 | |
| KG /DAY (RSP ) | GUIDELINE | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 5600 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Great Lakes Forest Products Ltd.
& PLANT LOCATION: Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: 9 km to Lake Superior (Thunder Bay)

DESCRIPTION OF ACTIVITY: Newsprint and kraft pulp are made from logs and chips, mainly softwoods (Black spruce, Jack pine Balsam fir etc.) and some Poplar, by the kraft, stone groundwood and sulphite pulping processes. The kraft pulp is bleached. Crude tall oil is recovered and sold.

EFFLUENT QUALITY: Contains suspended solids (bark and wood fibre etc.) and chemicals from pulping and bleaching liquors (chlorinated compounds).

EFFLUENT TREATMENT: Several clarifiers in the newsmill, the kraft mills and neutral fiber kraft ( clarification with pH adjustment). Bisulphite liquor cross recovery. Modern closed cycle process in "B" kraft Mill. Foul condensates are treated in-mill by steam stripping.

DISCHARGE TYPE: Continuous through a submerged diffuser with a separate clean cooling water discharge.

COMMENTS:

The Control Order for this company is being amended. The final clause requires a report on what further works can be implemented to ensure Provincial Water Quality Requirements are met in the Kaministiquia River. The report is due in June 1988. Its is anticipated that a new Control Order will be issued in 1988 - 1989.

This mill's discharge is normally toxic to fish. Three trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 16.2% to 71.9%.

IMIS NUMBER: 0000840009 SIC CODE(S): 271 MOE REGION: Northwest DISTRICT: Thunder Bay

08/25/88

000084-00-0(9) GREAT LAKES FOREST PRODUCTS LIMITED THUNDER BAY THUNDER BAY REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 190000 | 190000 | 200000 | 220000 | 250000 | 270000 | 260000 | 260000 | 250000 | 200000 | 184000 | 190000 | 222000 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 47000 | 49000 | 52000 | 45000 | 50000 | 46000 | 41000 | 40000 | 40000 | 43000 | 44000 | 42000 | 44916.66 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 77700 | 77700 | 77700 | 77700 | 77700 | 77700 | 77700 | 77700 | 77700 | 77700 | 77700 | 77700 | 77700 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 144.4 | 163.4 | 190 | 143 | 131.012 | 82.593 | 255.6 | 123.65 | 128 | 118.4 | 101.856 | 118.8 | 141.7259 | |
| KG /DAY (PPUT ) | GUIDELINE | 190 | 190 | 200 | 220 | 250 | 270 | 260 | 260 | 250 | 200 | 184 | 190 | 222 | 0 |
| RESIDUE PARTIC. | ACTUAL | 10000 | 12000 | 13000 | 12000 | 13000 | 10000 | 10000 | 10000 | 11000 | 12000 | 12000 | 11000 | 11333.33 | |
| KG /DAY (RSP ) | GUIDELINE | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: G. W. Martin Forest Products Ltd. Alban

INDUSTRIAL SECTOR:

RECEIVING WATERBODY: DIRECT: French River Main Channel (Ranger Bay)
INDIRECT: Georgian Bay (Lake Huron)

DESCRIPTION OF ACTIVITY: Saw Mill. Wood waste site. Company required to monitor receiving waterbody.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Sample point downstream of runnoff discharge from site, in local stream discharging to Ranger Bay.

COMMENTS:

The companys' Certificate of Approval requires a monitoring program in the receiving water body upstream and downstream of the runoff discharge location. An annual report is required to assess the sampling program, including follow-up action if indicated.

IMIS NUMBER: 0050750009 SIC CODE(S): 2513 MOE REGION: Northeast DISTRICT: Sudbury

09/27/88

005075-00-0(9) G.W. MARTIN FOREST PRODUCTS LTD ALBAN REPORT DATE: 15 APR 88

CONTROL POINT: 0300 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BOD 5 DAY | ACTUAL | | | | 11 | 18 | 0.5 | 7.5 | 12.5 | 13 | 6 | 2 | | 8.8125 | |
| MG/L (BOD5) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | | | | 34 | 19 | 5 | 16 | 22 | 310 | 21 | 17 | | 55.5 | |
| UG/L (PHNOL) | GUIDELINE | | | | | | | | | | | | | | |
| PO4 UNF.TOT. | ACTUAL | | | | | 0.033 | 0.029 | 0.026 | | | | | | 0.029333 | |
| MG/L (PPO4UT) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | | | | 0.072 | 0.033 | 0.029 | 0.026 | 0.042 | 0.078 | 0.051 | 0.016 | | 0.043375 | |
| MG/L (PPUT ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 0, FOR A TOTAL COMPLIANCE RECORD OF IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: H. J. Heinz Company of Canada Ltd. Leamington

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Selkirk Drain
INDIRECT: 1.3 km to Lake Erie

DESCRIPTION OF ACTIVITY: A wide variety of food products are made from produce grown locally.

EFFLUENT QUALITY: Contains vegetable processing waste (BOD and suspended solids).

EFFLUENT TREATMENT: Biological treatment system (activated sludge plus trickling filter).

DISCHARGE TYPE: continuous through an open outfall

COMMENTS:

Not in compliance with BOD, suspended solids and phosphorus guidelines. Effective January 1, 1988 the industrial wastewater treatment system has been integrated into the Leamington municipal pollution facility. Heinz wastewater will be pretreated during canning season. Engineering study underway to optimize operation of the municiapl treatment works.

IMIS NUMBER: 0001020007 SIC CODES: 103, 1031 MOE REGION: Southwest DISTRICT: Windsor

06/16/88

000102-00-0(7) H.J.HEINZ COMPANY OF CANADA LTD. LEAMINGTON REPORT DATE: 31 AUG 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 10580 | 10200 | 10630 | 12950 | 10030 | 15030 | 23210 | 41150 | 33210 | 8970 | 13475 | 9228 | 16555.25 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 15 | 43 | 139 | 199 | 185 | 454 | 245 | 2052 | 604 | 66 | 44.93 | | 367.9027 | |
| KG /DAY (BOD5 ) | GUIDELINE | 158.7 | 153 | 159.449 | 194.249 | 150.45 | 225.449 | 348.149 | 617.249 | 498.149 | 134.55 | 202.1 | | 248.3245 | 5 |
| CHEM. OX DEMAND | ACTUAL | 182 | 460 | 422 | 389 | 327 | 567 | 593 | 6128 | 1273 | 478 | 453.8 | 373.659 | 970.5382 | |
| KG /DAY (COD ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.295 | 7.21 | 7.28 | 7.075 | 7.09 | 7.125 | 7.105 | 7.415 | 7.35 | 6.86 | 6.9 | 6.85 | 7.129583 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 2.72 | 4.61 | 3.89 | 3.04 | 4.15 | 8.1 | 17.27 | 13.94 | 28.93 | 14.05 | 10.6 | 6.35 | 9.804166 | |
| KG /DAY (PPUT ) | GUIDELINE | 10.58 | 10.2 | 10.63 | 12.95 | 10.03 | 15.03 | 23.21 | 41.15 | 33.21 | 8.97 | 13.475 | 9.228 | 16.55525 | 1 |
| RESIDUE PARTIC. | ACTUAL | 124 | 66 | 43 | 184 | 81 | 39 | 192 | 8371 | 816 | 333 | 110.444 | 207.469 | 880.5760 | |
| KG /DAY (RSP ) | GUIDELINE | 158.7 | 153 | 159.449 | 194.249 | 84.0664 | 225.449 | 348.149 | 617.249 | 498.149 | 134.55 | 202.125 | 138.42 | 242.7962 | 4 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 TIMES OUT OF 47, FOR A TOTAL COMPLIANCE RECORD OF 79% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Inco Ltd.
& PLANT LOCATION: Copper Cliff Nickel Refinery

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Kelley Lake
INDIRECT: 62.5 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Various nickel products are made.

EFFLUENT QUALITY: Contains dissolved sulphates of nickel and copper.

EFFLUENT TREATMENT: Raw effluent is treated in two ponds with lime to precipitate the metals.

DISCHARGE TYPE: Continuous

COMMENTS:

Exceeded guideline for nickel (April). Total metals guideline exceeded on two occasions. April nickel exceedances attributed to a low pH value and total metal exceedances for August attributed to recent pond cleanup.

One of three trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 88.4%.

IMIS NUMBER: 0001690403 SIC CODE: 295 MOE REGION: Northeast DISTRICT: Sudbury

10/07/88

000169-04-0(3) INCO LTD — COPPER CLIFF — REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2905.1 | 849 | 2905 | 1547.9 | 1842.2 | 1689.6 | 1335.3 | 2221 | 1547.9 | 2742.2 | 1820.5 | 2338.2 | 1978.658 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.203 | 0.093 | 0.174 | 0.124 | 0.295 | 0.101 | 0.075 | 0.444 | 0.125 | 0.137 | 0.218 | 0.15 | 0.17825 | |
| KG /DAY (CUUT ) | GUIDELINE | 2.9051 | 0.849 | 2.905 | 1.5479 | 1.8422 | 1.6896 | 1.3353 | 2.221 | 1.5479 | 2.7422 | 1.8205 | 2.3382 | 1.978658 | 0 |
| IRON UNF.TOT. | ACTUAL | | | 0.15 | | | 0.152 | 0.124 | 0.644 | 0.243 | 0.282 | 0.401 | 0.274 | 0.28375 | |
| KG /DAY (FEUT ) | GUIDELINE | | | 2.905 | | | 1.6896 | 1.3353 | 2.221 | 1.5479 | 2.7422 | 1.8205 | 2.3382 | 2.074962 | 0 |
| NICKEL UNF.TOT. | ACTUAL | 0.959 | 0.484 | 2.498 | 2.09 | 1.474 | 0.389 | 0.18 | 2.088 | 0.302 | 0.809 | 0.91 | 0.685 | 1.072333 | |
| KG /DAY (NIUT ) | GUIDELINE | 2.9051 | 0.849 | 2.905 | 1.5479 | 1.8422 | 1.6896 | 1.3353 | 2.221 | 1.5479 | 2.7422 | 1.8205 | 2.3382 | 1.978658 | 1 |
| NH3-N TOTAL | ACTUAL | 5.81 | 1.358 | 7.844 | 1.703 | 0.184 | 0.169 | 1.602 | 0.444 | 1.78 | 1.097 | 1.092 | 1.9 | 2.081916 | |
| KG /DAY (NNHTUR) | GUIDELINE | 29.051 | 8.49 | 29.05 | 15.479 | 18.422 | 16.896 | 13.353 | 22.21 | 15.479 | 27.422 | 18.205 | 23.382 | 19.78658 | 0 |
| PH | ACTUAL | 10.3 | 10 | 9.2 | 8.8 | 9.6 | 10 | 9.6 | 10.1 | 10.1 | 10.25 | 10.1 | 8.6 | 9.720833 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 11.039 | 2.038 | 9.877 | 4.953 | 7.369 | 7.941 | 0.801 | 4.442 | 10.061 | 18.647 | 4.733 | 9 | 7.575083 | |
| KG /DAY (RSP ) | GUIDELINE | 43.5765 | 12.735 | 43.575 | 23.2185 | 27.633 | 25.344 | 20.0295 | 33.315 | 23.2185 | 41.133 | 27.3075 | 35.073 | 29.67987 | 0 |
| ZINC UNF.TOT. | ACTUAL | | | 0.025 | | | 0.051 | 0.009 | 0.178 | 0.017 | 0.027 | 0.009 | 0.033 | 0.043625 | |
| KG /DAY (ZNUT ) | GUIDELINE | | | 2.905 | | | 1.6896 | 1.3353 | 2.221 | 1.5479 | 2.7422 | 1.8205 | 2.3382 | 2.074962 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 76, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: INCO Ltd. Copper Cliff Creek Wastewater Treatment Plant

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion
INDIRECT: 70 km. to Lake Huron (North Channel) River to Spanish River

DESCRIPTION OF ACTIVITY: Smelting and refining of nickel, copper and precious metals.

EFFLUENT QUALITY: Contains dissolved nickel and copper sulphates and other metals.

EFFLUENT TREATMENT: Neutralization with lime.

DISCHARGE TYPE: Continuous

COMMENTS:

The design basis for the pH limit is under review. The Certificate of Approval limits are: Iron 0.5 ppm, Nickel 0.5 ppm, Copper 0.2 ppm, Suspended Solids 15 ppm. Iron exceeded limit in March due to high flow rates. Total metals guideline exceeded on one occasion.

One of two trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 64.2%.

IMIS NUMBER: 0001690304 SIC CODE(S): 0592 MOE REGION: Northeast DISTRICT: Sudbury

09/06/88

000169-03-0(4) INCO LTD — COPPER CLIFF — REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 30000 | 43137 | 99365 | 71918 | 25890 | 29150 | 42160 | 15220 | 14550 | 53020 | 79630 | 133880 | 53160 | |
| M3 /DAY (FTFLOW) | GUIDELIN | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 1.77 | 4.184 | 18.184 | 7.336 | 0.828 | 1.253 | 2.572 | 0.304 | 1.164 | 1.219 | 2.548 | 8.301 | 4.138583 | |
| KG /DAY (CUUT ) | GUIDELINE | 6 | 8.62739 | 19.873 | 14.3836 | 5.178 | 5.83 | 8.432 | 3.044 | 2.91 | 10.604 | 15.926 | 26.776 | 10.63199 | 0 |
| IRON UNF.TOT. | ACTUAL | 4.77 | 19.972 | 76.71 | 19.634 | 3.314 | 4.547 | 19.098 | 1.446 | 1.877 | 9.862 | 12.183 | 48.096 | 18.45908 | |
| KG /DAY (FEUT ) | GUIDELINE | 15 | 21.5685 | 49.6825 | 35.959 | 12.945 | 14.575 | 21.08 | 7.61 | 7.275 | 26.51 | 39.815 | 66.94 | 26.58 | 1 |
| NICKEL UNF.TOT. | ACTUAL | 9.42 | 16.823 | 34.778 | 19.418 | 4.919 | 5.83 | 10.692 | 2.435 | 3.056 | 14.846 | 22.296 | 49.536 | 16.17075 | |
| KG /DAY (NIUT ) | GUIDELINE | 15 | 21.5685 | 49.6825 | 35.959 | 12.945 | 14.575 | 21.08 | 7.61 | 7.275 | 26.51 | 39.815 | 66.94 | 26.58 | 0 |
| NH3-N TOTAL | ACTUAL | 151.2 | 159.607 | 290.444 | 411.731 | 134.628 | 123.45 | 210.8 | 71.154 | 67.658 | 198.295 | 398.15 | 622.5 | 236.6347 | |
| KG /DAY (NNHTUR) | GUIDELINE | 300 | 431.37 | 993.65 | 719.18 | 258.9 | 291.5 | 421.6 | 152.2 | 145.5 | 530.2 | 796.3 | 1338.8 | 531.6 | 0 |
| PH | ACTUAL | 10.2 | 10.1 | 10.1 | 10.1 | 10.2 | 10.2 | 10.2 | 10.2 | 10.1 | 10.2 | 10.1 | 10.2 | 10.15833 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 135 | 207.058 | 576.317 | 417.124 | 67.314 | 72.875 | 324.632 | 44.138 | 59.665 | 222.684 | 430.002 | 1017.5 | 297.8590 | |
| KG /DAY (RSP ) | GUIDELINE | 450 | 647.055 | 1490.47 | 1078.77 | 388.35 | 437.25 | 632.4 | 228.3 | 218.25 | 795.3 | 1194.45 | 2008.2 | 797.3995 | 0 |
| ZINC UNF.TOT. | ACTUAL | 0.42 | 0.949 | 1.391 | 0.647 | 0.958 | 0.379 | 1.012 | 0.213 | 0.102 | 1.219 | 1.194 | 2.142 | 0.8855 | |
| KG /DAY (ZNUT ) | GUIDELINE | 30 | 43.137 | 99.365 | 71.918 | 25.89 | 29.15 | 42.16 | 15.22 | 14.55 | 53.02 | 79.63 | 133.88 | 53.16 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Inco Ltd. Crean Hill Mine, Copper Cliff

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT : Unnamed creek to Monk Lake.
INDIRECT: Vermillion River

DESCRIPTION OF ACTIVITY: Mining and primary crushing of ore.

EFFLUENT QUALITY: Contains copper, nickel and iron sulphates.

EFFLUENT TREATMENT: Effluent from tailings is neutralized with lime.

DISCHARGE TYPE: Intermittent to become continuous

COMMENTS:

Mine is fully operational. Lime treatment system is to be upgraded.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMER: 0001690809 SIC CODE: 0592 MOE REGION: Northeast DISTRICT: Sudbury

07/05/88

000169-08-0(9) INCO LTD COPPER CLIFF REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | | | | | 2905.1 | 1547.9 | 1051.9 | 1166.4 | 1689.6 | 2000.3 | 1417.1 | 1417.1 | 1649.425 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | | | | | 0.038 | 0.062 | 0.015 | 0.07 | 0.034 | 0.046 | 0.085 | 0.034 | 0.048 | |
| KG /DAY (CUUT ) | GUIDELINE | | | | | 2.9051 | 1.5479 | 1.0519 | 1.1664 | 1.6896 | 2.0003 | 1.4171 | 1.4171 | 1.649425 | 0 |
| IRON UNF.TOT. | ACTUAL | | | | | 0.07 | 0.077 | 0.028 | 0.187 | 0.135 | 0.06 | 0.057 | 0.062 | 0.0845 | |
| KG /DAY (FEUT ) | GUIDELINE | | | | | 2.9051 | 1.5479 | 1.0519 | 1.1664 | 1.6896 | 2.0003 | 1.4171 | 1.4171 | 1.649425 | 0 |
| NICKEL UNF.TOT. | ACTUAL | | | | | 0.151 | 0.046 | 0.044 | 0.105 | 0.034 | 0.124 | 0.142 | 0.115 | 0.095125 | |
| KG /DAY (NIUT ) | GUIDELINE | | | | | 2.9051 | 1.5479 | 1.0519 | 1.1664 | 1.6896 | 2.0003 | 1.4171 | 1.4171 | 1.649425 | 0 |
| NH3-N TOTAL | ACTUAL | | | | | 0.291 | 0.155 | 0.105 | 0.233 | 0.507 | 0.4 | 0.283 | 0.4 | 0.29675 | |
| KG /DAY (NNHTUR) | GUIDELINE | | | | | 29.051 | 15.479 | 10.519 | 11.664 | 16.896 | 20.003 | 14.171 | 14.171 | 16.49425 | 0 |
| PH | ACTUAL | | | | | 10.2 | 9.9 | 8.9 | 8.9 | 9.9 | 8.3 | 8.6 | 8.6 | 9.1625 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | | | | | 1.162 | 0.929 | 0.421 | 16.33 | 5.069 | 0.2 | 0.142 | 3 | 3.406625 | |
| KG /DAY (RSP ) | GUIDELINE | | | | | 43.5765 | 23.2185 | 15.7785 | 17.496 | 25.344 | 30.0045 | 21.2565 | 21.2565 | 24.74137 | 0 |
| ZINC UNF.TOT. | ACTUAL | | | | | 0.006 | 0.031 | 0.013 | 0.047 | 0.034 | 0.02 | 0.043 | 0.003 | 0.024625 | |
| KG /DAY (ZNUT ) | GUIDELINE | | | | | 2.9051 | 1.5479 | 1.0519 | 1.1664 | 1.6896 | 2.0003 | 1.4171 | 1.4171 | 1.649425 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 56, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Inco Ltd. Frood Stobie
& PLANT LOCATION: Emergency Tailings Area
Copper Cliff

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: 77.5 km to Lake Huron (North Channel)
INDIRECT:

DESCRIPTION OF ACTIVITY: Mining and concentrating sulphide ores for smelting.

EFFLUENT QUALITY: Contains nickel, copper and iron sulphates.

EFFLUENT TREATMENT: Effluent from tailings area is neutralized with lime.

DISCHARGE TYPE: Intermittent

COMMENTS:

Total metals guideline exceeded on each sampling occasion. The company is proposing to re-route seasonal discharges to alternative treatment systems.

IMIS NUMBER: 0001690205 SIC CODE: 0592 MOE REGION: Northeast DISTRICT: Sudbury

09/06/88

000169-02-0(5) INCO LTD COPPER CLIFF REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | | | 3270.2 | 218 | | 54.5 | | | | 109 | 136.3 | 545.04 | 722.1733 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | | | 9.418 | 0.501 | | 0.06 | | | | 0.488 | 0.382 | 5.614 | 2.743833 | |
| KG /DAY (CUUT ) | GUIDELINE | | | 3.2702 | 0.218 | | 0.0545 | | | | 0.109 | 0.1363 | 0.54504 | 0.722173 | 6 |
| IRON UNF.TOT. | ACTUAL | | | 105.627 | 46.87 | | 1.014 | | | | 9.32 | 24.943 | 15.806 | 33.93 | |
| KG /DAY (FEUT ) | GUIDELINE | | | 3.2702 | 0.218 | | 0.0545 | | | | 0.109 | 0.1363 | 0.54504 | 0.722173 | 6 |
| NICKEL UNF.TOT. | ACTUAL | | | 14.225 | 2.354 | | 0.431 | | | | 1.619 | 2.113 | 5.396 | 4.356333 | |
| KG /DAY (NIUT ) | GUIDELINE | | | 3.2702 | 0.218 | | 0.0545 | | | | 0.109 | 0.1363 | 0.54504 | 0.722173 | 6 |
| NH3-N TOTAL | ACTUAL | | | 5.886 | 2.616 | | 0.005 | | | | 0.937 | 1.704 | 0.5 | 1.941333 | |
| KG /DAY (NNHTUR) | GUIDELINE | | | 32.702 | 2.18 | | 0.545 | | | | 1.09 | 1.363 | 5.4504 | 7.221733 | 2 |
| PH | ACTUAL | | | 4.2 | 3.4 | | 3.3 | | | | 3.31 | 3.6 | 3.6 | 3.568333 | 6 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | | | 412.045 | 1.57 | | 0.36 | | | | 1.308 | 4.144 | 86 | 84.23783 | |
| KG /DAY (RSP ) | GUIDELINE | | | 49.053 | 3.27 | | 0.8175 | | | | 1.635 | 2.0445 | 8.1756 | 10.8326 | 3 |
| ZINC UNF.TOT. | ACTUAL | | | 0.598 | 0.153 | | 0.016 | | | | 0.06 | 0.097 | 0.197 | 0.186833 | |
| KG /DAY (ZNUT ) | GUIDELINE | | | 3.2702 | 0.218 | | 0.0545 | | | | 0.109 | 0.1363 | 0.54504 | 0.722173 | 0 |

NOTE: PH LIMIT 5.5;-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 29 TIMES OUT OF 42, FOR A TOTAL COMPLIANCE RECORD OF 31% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: INCO Ltd.
& PLANT LOCATION: Garson Mine

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Junction Creek to Vermillion River
INDIRECT: 86 km. to Lake Huron (North Channel) to Spanish River

DESCRIPTION OF ACTIVITY: Mining and primary crushing of ore.

EFFLUENT QUALITY: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Effluent from tailings area is neutralized with lime.

DISCHARGE TYPE: Continuous from mine water treatment system

COMMENTS:

The mine is not being operated. Exceeded nickel guideline in March. Exceedance due to drop in treatment efficiency during the winter months at lower pH level.

IMIS NUMBER: 0001690700 SIC CODE(S): 0592 MOE REGION: Northeast DISTRICT: Sudbury

10/07/88

000169-07-0(0) INCO LTD COPPER CLIFF REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2374.4 | 2397.1 | 2116.7 | 2501.9 | 2451.5 | 2559.6 | 2298.9 | 2482.2 | 2555.8 | 2659.3 | 2821.3 | 1814.9 | 2419.466 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.019 | 0.117 | 0.148 | 0.045 | 0.061 | 0.051 | 0.08 | 0.055 | 0.064 | 0.024 | 0.034 | 0.057 | 0.062916 | |
| KG /DAY (CUUT ) | GUIDELINE | 2.3744 | 2.3971 | 2.1167 | 2.5019 | 2.4515 | 2.5596 | 2.2989 | 2.4822 | 2.5558 | 2.6593 | 2.8213 | 1.8149 | 2.419466 | 0 |
| IRON UNF.TOT. | ACTUAL | 0.047 | 0.623 | 0.356 | 0.075 | 1.081 | 0.146 | 0.103 | 0.209 | 0.304 | 0.043 | 0.056 | 0.107 | 0.2625 | |
| KG /DAY (FEUT ) | GUIDELINE | 2.3744 | 2.3971 | 2.1167 | 2.5019 | 2.4515 | 2.5596 | 2.2989 | 2.4822 | 2.5558 | 2.6593 | 2.8213 | 1.8149 | 2.419466 | 0 |
| NICKEL UNF.TOT. | ACTUAL | 0.876 | 1.155 | 3.526 | 0.806 | 1.287 | 0.932 | 0.552 | 0.328 | 0.197 | 0.247 | 0.64 | 1.611 | 1.013083 | |
| KG /DAY (NIUT ) | GUIDELINE | 2.3744 | 2.3971 | 2.1167 | 2.5019 | 2.4515 | 2.5596 | 2.2989 | 2.4822 | 2.5558 | 2.6593 | 2.8213 | 1.8149 | 2.419466 | 1 |
| NH3-N TOTAL | ACTUAL | 2.137 | 1.266 | 0.669 | 1.326 | 1.287 | 1.339 | 0.805 | 1.656 | 1.406 | 4.122 | 1.693 | 0.9 | 1.5505 | |
| KG /DAY (NNHTUR) | GUIDELINE | 23.744 | 23.971 | 21.167 | 25.019 | 24.515 | 25.596 | 22.989 | 24.822 | 25.558 | 26.593 | 28.213 | 18.149 | 24.19466 | 0 |
| PH | ACTUAL | 9.1 | 9.2 | 8 | 9.2 | 7.8 | 8.5 | 8.7 | 8.9 | 8.6 | 9.15 | 8.7 | 9.3 | 8.7625 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 6.886 | 14.023 | 12.997 | 12.927 | 35.302 | 3.371 | 1.092 | 13.404 | 8.179 | 3.324 | 2.068 | 16.2 | 10.81441 | |
| KG /DAY (RSP ) | GUIDELINE | 35.616 | 35.9565 | 31.7505 | 37.5285 | 36.7725 | 38.394 | 34.4835 | 37.233 | 38.337 | 39.8895 | 42.3195 | 27.2235 | 36.292 | 0 |
| ZINC UNF.TOT. | ACTUAL | 0.021 | 0.058 | 0.095 | 0.093 | 0.287 | 0.054 | 0.092 | 0.037 | 0.118 | 0.037 | 0.039 | 0.053 | 0.082 | |
| KG /DAY (ZNUT ) | GUIDELINE | 2.3744 | 2.3971 | 2.1167 | 2.5019 | 2.4515 | 2.5596 | 2.2989 | 2.4822 | 2.5558 | 2.6593 | 2.8213 | 1.8149 | 2.419466 | 0 |

NOTE: PH LIMIT 5.5;-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Inco Ltd.
& PLANT LOCATION: Levack Tailings Area

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Onaping R.
INDIRECT: 113 km to Lake Huron

DESCRIPTION OF ACTIVITY: Mining and crushing operations.

EFFLUENT QUALITY: Contains dissolved nickel and copper sulphates.

EFFLUENT TREATMENT: Effluent from tailings is limed prior to discharge.

DISCHARGE TYPE: Continuous

COMMENTS:

Suspended solids exceeded during spring runoff (2 occasions) and Iron (2 occasions). Ph exceeded guidelines in February. Total metals guideline exceeded on two occasions. The company is investigating the effluent instrument control systems and improvements to the treatment ponds to correct problems.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 53.7%.

IMIS NUMBER: 0001690106 SIC CODE: 0592 MOE REGION: Northeast DISTRICT: Sudbury

10/07/88

000169-01-0(6) INCO LTD — COPPER CLIFF — REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 905.3 | 1125.9 | 5651 | 905.3 | 685.1 | 905.3 | 782.7 | 489.4 | 1002.9 | 1712.5 | 1125.5 | 7510.7 | 1900.133 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.081 | 0.09 | 0.593 | 0.543 | 0.055 | 0.054 | 0.013 | 0.038 | 0.03 | 0.092 | 0.214 | 0.18 | 0.16525 | |
| KG /DAY (CUUT ) | GUIDELINE | 0.9053 | 1.1259 | 5.651 | 0.9053 | 0.6851 | 0.9053 | 0.7827 | 0.4894 | 1.0029 | 1.7125 | 1.1255 | 7.5107 | 1.900133 | 0 |
| IRON UNF.TOT. | ACTUAL | 0.172 | 0.225 | 8.703 | 19.645 | 0.116 | 0.091 | 0.081 | 0.323 | 0.17 | 0.176 | 0.27 | 1.622 | 2.632833 | |
| KG /DAY (FEUT ) | GUIDELINE | 0.9053 | 1.1259 | 5.651 | 0.9053 | 0.6851 | 0.9053 | 0.7827 | 0.4894 | 1.0029 | 1.7125 | 1.1255 | 7.5107 | 1.900133 | 2 |
| NICKEL UNF.TOT. | ACTUAL | 0.86 | 0.191 | 3.306 | 11.045 | 0.089 | 0.118 | 0.056 | 0.065 | 0.07 | 0.108 | 0.484 | 0.646 | 1.419833 | |
| KG /DAY (NIUT ) | GUIDELINE | 0.9053 | 1.1259 | 5.651 | 0.9053 | 0.6851 | 0.9053 | 0.7827 | 0.4894 | 1.0029 | 1.7125 | 1.1255 | 7.5107 | 1.900133 | 1 |
| NH3-N TOTAL | ACTUAL | 5.613 | 7.093 | 14.128 | 3.4 | 2.329 | 1.086 | 1.722 | 1.37 | 1.203 | 4.024 | | | 4.1968 | |
| KG /DAY (NNHTUR) | GUIDELINE | 9.053 | 11.259 | 56.51 | 9.053 | 6.851 | 9.053 | 7.827 | 4.894 | 10.029 | 17.125 | | | 14.1654 | 0 |
| PH | ACTUAL | 10.5 | 11 | 9.1 | 7.9 | 9.8 | 10.6 | 9.6 | 10 | 9.7 | 10.23 | 8.1 | 10.6 | 9.760833 | 1 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 2.716 | 31.525 | 65.552 | 99.583 | 2.74 | 13.036 | 1.409 | 5.286 | 5.817 | 8.563 | 8.554 | 45 | 24.14841 | |
| KG /DAY (RSP ) | GUIDELINE | 13.5795 | 16.8885 | 84.765 | 13.5795 | 10.2765 | 13.5795 | 11.7405 | 7.341 | 15.0435 | 25.6875 | 16.8825 | 112.66 | 28.50195 | 2 |
| ZINC UNF.TOT. | ACTUAL | 0.027 | 0.034 | 0.559 | 0.199 | 0.034 | 0.036 | 0.013 | 0.017 | 0.02 | 0.026 | 0.068 | 0.015 | 0.087333 | |
| KG /DAY (ZNUT ) | GUIDELINE | 0.9053 | 1.1259 | 5.651 | 0.9053 | 0.6851 | 0.9053 | 0.7827 | 0.4894 | 1.0029 | 1.7125 | 1.1255 | 7.5107 | 1.900133 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 TIMES OUT OF 82, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME:: INCO Ltd.
& PLANT LOCATION: Nolin Creek Wastewater Treatment Plant

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Nolin Creek to Junction Creek to Vermillion River to Spanish River
INDIRECT: 77 km. to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Metallurgical complex that smelts and refines nickel, copper and associated metals from concentrates.

EFFLUENT QUALITY: Contains a variety of dissolved metal salts.

EFFLUENT TREATMENT: Neutralized by addition of lime.

DISCHARGE TYPE: Continuous

COMMENTS:

The Certificate of Approval limits; iron - 0.5 ppm, nickel - 0.5 ppm, copper 0.2 ppm, suspended solids 15 ppm. The original design information which was the basis for the Certificate of Approval limits is being reviewed.

IMIS NUMBER: 0001690601 SIC CODE: 0592 MOE REGION: Northeast DISTRICT:Sudbury

05/17/88

000169-06-0(1) INCO LTD — COPPER CLIFF — REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 6695 | 5440 | 15623 | 20210 | 9430 | 5860 | 2650 | 3170 | 4010 | 5280 | 9310 | 13420 | 8424.833 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.187 | 0.092 | 1.422 | 2.89 | 0.453 | 0.27 | 0.077 | 0.06 | 0.16 | 0.28 | 1.536 | 1.06 | 0.70725 | |
| KG /DAY (CUUT ) | GUIDELINE | 1.339 | 1.088 | 3.1246 | 4.042 | 1.886 | 1.172 | 0.53 | 0.634 | 0.802 | 1.056 | 1.862 | 2.684 | 1.684966 | 0 |
| IRON UNF.TOT. | ACTUAL | 3.22 | 1.463 | 5.812 | 10.772 | 1.716 | 1.195 | 0.193 | 0.371 | 1.075 | 1.668 | 6.545 | 5.445 | 3.289583 | |
| KG /DAY (FEUT ) | GUIDELINE | 3.3475 | 2.72 | 7.8115 | 10.105 | 4.715 | 2.93 | 1.325 | 1.585 | 2.005 | 2.64 | 4.655 | 6.71 | 4.212416 | 2 |
| NICKEL UNF.TOT. | ACTUAL | 1.145 | 0.87 | 5.624 | 6.063 | 1.98 | 1.055 | 0.424 | 0.476 | 0.722 | 1.32 | 2.886 | 3.892 | 2.20475 | |
| KG /DAY (NIUT ) | GUIDELINE | 3.3475 | 2.72 | 7.8115 | 10.105 | 4.715 | 2.93 | 1.325 | 1.585 | 2.005 | 2.64 | 4.655 | 6.71 | 4.212416 | 0 |
| NH3-N TOTAL | ACTUAL | 24.638 | 19.584 | 16.326 | 34.62 | 32.439 | 22.491 | 19.716 | 25.36 | 33.151 | 17.635 | 32.12 | 39.254 | 26.4445 | |
| KG /DAY (NNHTUR) | GUIDELINE | 66.95 | 54.4 | 156.23 | 202.1 | 94.3 | 58.6 | 26.5 | 31.7 | 40.1 | 52.8 | 93.1 | 134.2 | 84.24833 | 0 |
| PH | ACTUAL | 11.1 | 10.4 | 10.3 | 10.4 | 10.2 | 10.3 | 10.4 | 10.4 | 10.6 | 10.3 | 10.3 | 10.5 | 10.43333 | 1 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 38.162 | 11.968 | 67.179 | 111.357 | 31.025 | 19.162 | 6.36 | 8.559 | 29.634 | 27.403 | 44.688 | 84.5 | 39.99975 | |
| KG /DAY (RSP ) | GUIDELINE | 100.425 | 81.6 | 234.345 | 303.15 | 141.45 | 87.9 | 39.75 | 47.55 | 60.15 | 79.2 | 139.65 | 201.3 | 126.3725 | 0 |
| ZINC UNF.TOT. | ACTUAL | 0.074 | 0.044 | 0.219 | 0.182 | 0.207 | 0.047 | 0.04 | 0.029 | 0.028 | 0.058 | 0.112 | 0.158 | 0.099833 | |
| KG /DAY (ZNUT ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-10.6, INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: INCO Metals Ltd.
& PLANT LOCATION: Port Colborne

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Electrolytic processes are used to recover pure metals like nickel, copper, silver, gold, etc.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Filtration plant.

DISCHARGE TYPE: open outfall

COMMENTS:

Company not in compliance for pH. Company experimenting with treatment alternatives including polymers to reduce/eliminate use of lime as a coagulant.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 80.6%.

IMIS NUMBER: 0001600105 SIC CODE: 295 MOE REGION: West Central DISTRICT: Welland

07/19/88

000160-01-0(5) INCO METALS COMPANY PORT COLBORNE REPORT DATE: 20 JUL 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 13200 | 12600 | 14100 | 15400 | 16300 | 18300 | 10700 | 17900 | 20700 | 15400 | 15900 | 15900 | 15533.33 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NICKEL UNF.TOT. | ACTUAL | 2.6 | 1.8 | 2.5 | 3.4 | 3.1 | 4.6 | 1.9 | 2.3 | 4 | 1.9 | 2.3 | 4 | 2.866666 | |
| KG /DAY (NIUT ) | GUIDELINE | 13.2 | 12.6 | 14.1 | 15.4 | 16.3 | 18.3 | 10.7 | 17.9 | 20.7 | 15.4 | 15.9 | 15.9 | 15.53333 | 0 |
| PH | ACTUAL | 10.5 | 10.5 | 10.9 | 10.9 | 10.7 | 10.2 | 10 | 10.1 | 10.2 | 10.2 | 10.4 | 10.6 | 10.43333 | |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | 3 |
| RESIDUE PARTIC. | ACTUAL | 53 | 32.8 | 40.9 | 43.1 | 21.2 | 42.9 | 31.1 | 31.2 | 50.6 | 31.1 | 27.6 | 61 | 38.875 | |
| KG /DAY (RSP ) | GUIDELINE | 198 | 189 | 211.5 | 231 | 244.5 | 274.5 | 160.5 | 268.5 | 310.5 | 231 | 238.5 | 238.5 | 233 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: & PLANT LOCATION: International Minerals and Chemicals Dunnville

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: Grand River
INDIRECT: 3 km to Lake Erie

DESCRIPTION OF ACTIVITY: Phosphate ore, sulphuric acid and phosphoric acid are used to make fertilizer.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Lime precipitation.

DISCHARGE TYPE: continuous at shoreline

COMMENTS:

Since plant shut down, phosphorus loadings have continued to decline. WWTP continues to operate to treat phosphorus in storm runnoff. Company is preparing decommissioning plan for closure of gypsum ponds.

IMIS NUMBER: 0001500008 SIC CODE: 372 MOE REGION: West Central DISTRICT: Haldimand-Norfolk/Brant

07/19/88

000150-00-0(8) INTERNATIONAL MINERALS AND CHEMICAL CORPORATION DUNNVILLE REPORT DATE: 15 APR 88

CONTROL POINT: 0300 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 3677.4 | 3314.1 | 4066.79 | 4101.32 | 4228.6 | 4213.6 | 3734 | 2707.9 | 3039.5 | 3242.5 | 3249.27 | 3343.4 | 3576.531 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 10.4 | 10.3 | 10.2 | 9.9 | 9.7 | 9.7 | | 9.5 | 9.2 | 9.3 | | 9.3 | 9.75 | 6 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 4.04 | 3.37 | 3.6 | 3.8 | 3.3 | 2.6 | 1.6 | 1.2 | 1.4 | 1.6 | 2 | 2.7 | 2.600833 | |
| KG /DAY (PPUT ) | REQUIREMENT | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 4.54 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 TIMES OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 73% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: James River-Marathon Ltd.
& PLANT LOCATION: Marathon

INDUSTRIAL SECTOR: Kraft Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Lake Superior
INDIRECT:

DESCRIPTION OF ACTIVITY: Pulp is produced from chips (both hardwood and softwoods) by the kraft pulping process. The pulp is bleached. Crude tall oil is removed and sold.

EFFLUENT QUALITY: Contains suspended solids (bark and wood fibres) and many organic (some chlorinated) compounds.

EFFLUENT TREATMENT: Primary clarifier on high-solids wastewaters and foam barrier remove solids. The woodroom hardwood (debarking) is dry.

DISCHARGE TYPE: Continuous through a diffuser.

COMMENTS:

Existing Control Order requires stepwise reductions in Total Suspended Solids and Biochemical Oxygen Demand as follows: BOD to 35 kg/ADMT by Dec. 31, 1986 and 30 kg/ADMT by Dec.31, 1989 and TSS to 6,000 kg/day by Dec. 31, 1985 and 4,000 kg/day by June 30, 1988 all averaged over 30 consectutive working days. The Order also requires compliance with the federal toxicity requirement by December 31,1989.

This mill's discharge is normally toxic to fish. Seven trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 10.0% to 22.6%.

IMIS NUMBER: 0000850008 SIC CODE(S): 271 MOE REGION: Northwest DISTRICT: Thunder Bay

08/25/88

000085-00-0(8) JAMES RIVER MARATHON LTD. MARATHON REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 59662 | 61497 | 60149 | 59522 | 59285 | 58559 | 63749 | 65897 | 66976 | 62758 | 61172 | 59943 | 61597 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 11930 | 13410 | 13890 | 14050 | 12210 | 13000 | 11860 | 14230 | 14530 | 13810 | 14930 | 14630 | 13540 | |
| KG /DAY (BOD5 ) | REQUIREMENT | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 37.6 | 31.97 | 30.07 | 26.78 | 36.16 | | 33.78 | 40.85 | 40.18 | 41.4 | 44.04 | 31.47 | 35.845 | |
| KG /DAY (PPUT ) | GUIDELINE | 59.662 | 61.497 | 60.149 | 59.522 | 59.285 | | 63.749 | 65.897 | 66.976 | 62.758 | 61.172 | 59.943 | 56.718 | 0 |
| RESIDUE PARTIC. | ACTUAL | 2330 | 2890 | 2530 | 3390 | 2250 | 1760 | 2420 | 2640 | 3210 | 2260 | 1840 | 2160 | 2473 | |
| KG /DAY (RSP ) | GUIDELINE | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 6000 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 23, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: J. M. Schneider Inc. Ayr

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Nith River to Grand River
INDIRECT: 196 km to Lake Erie

DESCRIPTION OF ACTIVITY: Beef and pork is packaged and poultry is deep fried and packaged for retail sales.

EFFLUENT QUALITY: Contains dissolved organics and phosphorus.

EFFLUENT TREATMENT: Grease skimming, flow equalization, dissolved air flotation, aeration and sedimentation.

DISCHARGE TYPE: seven day continuous flow through a submerged outfall

COMMENTS:

Generally in compliance; one monthly exceedance for phosphorus. Flow meter installed in May 1986 showed actual discharge volume is approximately one fourth of previously reported flows. Monthly requirements are those of Certificate of Approval, revised in November 1986.

IMIS NUMBER: 0001440007 SIC CODES: 1011, 1012 MOE REGION: West Central DISTRICT: Cambridge

05/30/88

000144-00-0(7) J.M.SCHNEIDER INC AYR REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 74.34 | 106.31 | 92.12 | 65.33 | 59.5 | 68.32 | | 61.76 | 67.78 | 57.94 | 48.89 | 51.16 | 68.49545 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | 363 | 363 | 363 | 363 | 363 | 363 | | 363 | 363 | 363 | 363 | 363 | 363 | 0 |
| BOD 5 DAY | ACTUAL | 0.74 | 1.06 | 0.92 | 0.655 | 0.59 | 0.88 | 0.77 | 0.62 | | 0.58 | | 0.72 | 0.7535 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | | 5.46 | | 5.46 | 5.46 | 0 |
| NH3-N TOTAL | ACTUAL | 2.11 | 0.1 | 0.03 | 0.5 | 0.07 | 0.06 | 0.04 | 0.09 | 0.08 | 0.03 | 0.18 | 0.02 | 0.275833 | |
| KG /DAY (NNHTFR) | REQUIREMENT | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 3.64 | 0 |
| K'DAHL N TOTAL | ACTUAL | | | 0.27 | 0.61 | 0.19 | 0.03 | 0.09 | 0.16 | 0.12 | 0.06 | 0.22 | 0.02 | 0.177 | |
| KG /DAY (NNTKUR) | REQUIREMENT | | | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 0 |
| PH | ACTUAL | 7.14 | 7.28 | 7 | 6.33 | 7.12 | 6.18 | 6.72 | 7.05 | 7.46 | 6.73 | 7.35 | 6.86 | 6.935 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.04 | 0.33 | 0.11 | 0.017 | 0.015 | 0.02 | 0 | 0.01 | 0.01 | 0.01 | 0.03 | 0.39 | 0.081833 | |
| KG /DAY (PPUT ) | REQUIREMENT | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | 1 |
| RESIDUE PARTIC. | ACTUAL | 1.88 | 1.65 | 0.75 | 0.45 | 0.35 | 0.84 | 0.74 | 0.99 | 0.66 | 0.56 | 0.68 | 0.71 | 0.855 | |
| KG /DAY (RSP ) | REQUIREMENT | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 5.46 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 0.76 | 1.45 | 2.1 | 0.25 | 0.18 | 0.37 | 1.65 | 0.81 | 0.51 | 0.24 | 0.27 | 0.16 | 0.729166 | |
| KG /DAY (SOLEXT) | REQUIREMENT | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 5.36 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 91, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Kimberly-Clark of Canada Huntsville

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Muskoka R.
INDIRECT:

DESCRIPTION OF ACTIVITY: Converts pulp into personal paper products

EFFLUENT QUALITY: Practically zero effluent

EFFLUENT TREATMENT: Conventional and tertiary

DISCHARGE TYPE: Intermittent

COMMENTS:

Direct discharge seasonal, approximately 6 months out of the year. Alternate disposal is land spraying. During July and August company sprayed on approved area - no discharge. RSF and PPUT Requirement set by Certificate of Approval. COD is industry wide guideline.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMER: 0000830109 SIC CODE: 271 MOE REGION: Central DISTRICT: Barrie

07/05/88

000083-01-0(9) KIMBERLY-CLARK OF CANADA LIMITED HUNTSVILLE MILL HUNTSVILLE REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 632 | 730 | 637 | 311 | 137 | 160 | 0 | 0 | 387 | 289 | 914 | 909 | 426 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHEM. OX DEMAND | ACTUAL | 37.9 | 49.65 | 45.23 | 25.19 | 3.97 | 4.16 | | | 46.82 | 19 | 69 | 54 | 35.5 | |
| KG /DAY (COD ) | GUIDELINE | 800 | 800 | 800 | 800 | 800 | 800 | | | 800 | 800 | 800 | 800 | 800 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.015 | 0.02 | 0.017 | 0.009 | 0.001 | 0.0009 | | | 0.018 | 0.01 | 0.03 | 0.04 | 0.016 | |
| KG /DAY (PPUT ) | REQUIREMENT | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | | | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0 |
| RESIDUE FILTERED | ACTUAL | 3 | 4 | 3 | 3 | 0.1 | 0.16 | | | 5.03 | 0.5 | 2.9 | 1.7 | 2.34 | |
| KG /DAY (RSF ) | REQUIREMENT | 151 | 151 | 151 | 151 | 151 | 151 | | | 151 | 151 | 151 | 151 | 151 | 0 |

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 30, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Kimberly Clark of Canada Ltd. St. Catharines

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Old Welland Canal to Twelve Mile Creek
INDIRECT: 10.0 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Pulp and clean waste paper are made into tissue and special papers.

EFFLUENT QUALITY: Residual solids make effluent look "milky".

EFFLUENT TREATMENT: "Saveall" screens precede primary clarifier and retention ponds for solids removal..

DISCHARGE TYPE: continuous through an open outfall

COMMENTS:

Target loads set by Pulp and Paper Committee consistent with best practicable technology. Company is reducing use of recycled paper to improve BOD5 reduction. Company operating polishing lagoons to reduce BOD5. Company expected compliance in 1988.

This mill's discharge is normally not toxic to fish. Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000830208 SIC CODE: 271 MOE REGION: West Central DISTRICT: Welland

07/20/88

000083-02-0(8) KIMBERLY CLARK OF CANADA LTD. ST.CATHARINES REPORT DATE: 20 JUL 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 9692 | 9610 | 10700 | 10527 | 9834 | 10219 | 11573 | 9410.22 | 10399.6 | 9601.61 | 9419.58 | 8136.46 | 9926.872 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 288.8 | 305.6 | 459.2 | 450.8 | 432.7 | 461.6 | 406.2 | 413.4 | 371.1 | 528.4 | 440.7 | 339.1 | 408.1333 | |
| KG /DAY (BOD5 ) | GUIDELINE | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 9 |

CONTROL POINT: 0300 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDUE FILTERED | ACTUAL | 180.3 | 340.2 | 481.7 | 459.8 | 521.1 | 482.7 | 429.2 | 400.5 | 436.3 | 731.8 | 704.3 | 495.7 | 471.9666 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 0.1 | 0.38 | 0 | 0 | 83.5 | 41.9 | 11.9 | 20.5 | 76.4 | 43.6 | 0 | 55.9 | 27.84833 | |
| KG /DAY (RSP ) | GUIDELINE | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 362 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 63% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Kimberly-Clark of Canada Ltd. Terrace Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Blackbird Creek
INDIRECT: Lake Superior (Jackfish Bay)

DESCRIPTION OF ACTIVITY: Hardwood and softwood logs are made into bleached pulp by the kraft pulping process

EFFLUENT QUALITY: Contains suspended solids (bark and wood fibres) and organic compounds (some chlorinated) from the pulping process.

EFFLUENT TREATMENT: Clarifiers, spill collection. Two clarifiers remove solids and foul condensates are steam stripped to remove odourous organics.

DISCHARGE TYPE: continuous surface

COMMENTS:

A new Control Order was issued in 1987 which expires in 1989. The discharge of BOD is not to exceed 30 kg/admADMT for the duration of the order. The suspended solids is not to exceed 8.0 tonnes per day and by December 31, 1987 is to be further reduced to 7.5 tonnes per day. The effluent is to meet toxicity requirements by 1989. There were exceedances of suspended solids in Feb. and July.

The mill's discharge is normally toxic to fish. Five trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of four days exposure ranged from 15.1% to 42.8%

IMIS NUMBER: 0000830000 SIC CODE: 271 MOE REGION: Northwest DISTRICT: Thunder Bay

07/05/88

000083-00-0(0) KIMBERLY-CLARK OF CANADA LTD. TERRACE BAY REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 100000 | 107000 | 107000 | 106000 | 115000 | 113000 | 123000 | 132000 | 130000 | 116000 | 118000 | 113000 | 115000 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 23000 | 29000 | 24000 | 27000 | 28000 | 25000 | 22000 | 23000 | 22000 | 23000 | 27000 | 25000 | 24833.33 | |
| KG /DAY (BOD5 ) | REQUIREMENT | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 54 | 84 | 94 | 69 | 21 | 67 | 70 | 58 | | | | | 64.625 | |
| KG /DAY (PPUT ) | GUIDELINE | 100 | 107 | 107 | 106 | 115 | 113 | 123 | 132 | | | | | 115 | 0 |
| RESIDUE PARTIC. | ACTUAL | 4910 | 8200 | 4400 | 4900 | 6000 | 6000 | 9000 | 6000 | 5000 | 4000 | 4400 | 4000 | 5567.5 | |
| KG /DAY (RSP ) | GUIDELINE | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 | 2 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Kraft Foods Ltd.
& PLANT LOCATION: Ingleside

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Hoople Creek
INDIRECT: 2.0 km to St. Lawrence River

DESCRIPTION OF ACTIVITY: Milk is made into cheese

EFFLUENT QUALITY: Effluent generated by the cleaning of cheese making equipment. Contains dissolved and suspended milk solids.

EFFLUENT TREATMENT: Extended aeration using diffused air.

DISCHARGE TYPE: Continuous via a ditch.

COMMENTS:

Compliance has been assessed according to Ministry policy for discharges from secondary treatment plants. Kraft, as a requirement of its existing Certificate of Approval, has provided a report on how to meet the new Ministry objectives set for its discharges of BOD, suspended solids and phosphorus. The company will apply for a Provisional C. of A. for the design proposed by May 26, 1988. The new C. of A. will contain enforceable requirements.

IMIS NUMBER: 0001940006 SIC CODE: 104 MOE REGION: Southeast DISTRICT: Cornwall

08/26/88

000194-00-0(6) KRAFT LIMITED INGLESIDE REPORT DATE: 26 AUG 88

CONTROL POINT: 0200 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BOD 5 DAY | ACTUAL | 19.6 | 131.8 | 125.7 | 95.9 | 76.8 | 62 | 40.6 | 49.2 | 67.9 | 51 | 86.2 | 102.9 | 75.8 | |
| MG/L (BOD5 ) | GUIDELINE | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 11 |
| PHOSPHOR UNF.TOT. | ACTUAL | 7.9 | 11.6 | 8.6 | 8.5 | 11 | 10.6 | 7.3 | 7.9 | 8.5 | 6 | 6.3 | 9.8 | 8.7 | |
| MG/L (PPUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 |
| RESIDUE PARTIC. | ACTUAL | 77.8 | 154.2 | 94.8 | 80 | 265 | 106.6 | 73.9 | 117.4 | 135.8 | 64.6 | 195.3 | 200.8 | 130.5 | |
| MG/L (RSP ) | GUIDELINE | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 12 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 35 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 3% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Lac Minerals (Macassa Div.) Kirkland Lake

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Amikougami Cr.
INDIRECT: Blanche River

DESCRIPTION OF ACTIVITY: Gold mining, milling and recovery using Cyanide Circuit Recovery.

EFFLUENT QUALITY: Contains dissolved metal salts of copper, nickel, zinc etc.

EFFLUENT TREATMENT: Tailings effluent.

DISCHARGE TYPE: Continuous

COMMENTS:

The company ceased their effluent discharge during the spring of 1987. A Certificate of Approval for Phase 1 of a two stage program has been issued. A C. of A for a polishing pond and $H_2O_2$ treatment plant has been applied for. A new mill and the treatment plant will be in operation by the fall of 1988.
Prior to stopping discharge exceedances were observed in copper, cyanide and suspended solids. Discharge was resumed in July 1987 and halted in November 1987. A total of 5 cyanide, 3 copper and 3 suspended solids exceedances were noted in 1987.

Two of six trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 24.0% and 39.1%.

IMIS NUMBER: 0001410000 SIC CODE: 052 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000141-00-0(0) LAC MINERALS - MACASSA DIVISION KIRKLAND LAKE REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CYANIDE AVAIL | ACTUAL | 7.5 | 24.51 | 9.39 | 5.5 | | | 0.04 | 0.18 | | 2.6 | | | 7.1 | |
| MG/L (CCNAUR) | GUIDELINE | 2 | 2 | 2 | 2 | | | 2 | 2 | | 2 | | | 2 | 5 |
| COPPER UNF.TOT. | ACTUAL | 1.6 | 1.34 | 2 | 0.28 | | | 0.16 | 0.05 | | 0.43 | | | 0.84 | |
| MG/L (CUUT) | REQUIREMENT | 1 | 1 | 1 | 1 | | | 1 | 1 | | 1 | | | 1 | 3 |
| PH | ACTUAL | 7.7 | 8.21 | 8.03 | 8.22 | 8.35 | 8.26 | 7.8 | 8.45 | 8.4 | 8.55 | | | 8.197 | |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | 0 |
| RESIDUE PARTIC. | ACTUAL | 39.5 | 3.8 | 6.04 | 3.6 | 6 | 8.28 | 3.31 | 107.8 | 7.1 | 17.1 | | | 20.253 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | | | 15 | 3 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 TIMES OUT OF 34, FOR A TOTAL COMPLIANCE RECORD OF 68% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: MacMillan Bloedel Limited, Sturgeon Falls Division, Sturgeon Falls

INDUSTRIAL SECTOR: Pulp and Paper

RECEIVING WATERBODY: DIRECT: Sturgeon River to Lake Nipissing to French River Main Channel
INDIRECT: 124 km to Lake Huron (Georgian Bay)

DESCRIPTION OF ACTIVITY: Two different processes are used on softwoods (Red and White pine) and hardwood (Maple, Poplar, Birch). Chips are thermal refined and glued to form hard-board. Chips are converted by the neutral sulphite semi-chemical process into corrugating medium.

EFFLUENT QUALITY: Contains suspended solids (bark, wood, pulp) and dissolved organics.

EFFLUENT TREATMENT: Primary clarifier removes suspended solids. An anaerobic secondary treatment process will be constructed in 1989 to reduce mill BOD load to approximately 12 tonnes per day.

DISCHARGE TYPE: Continuous, seven days a week; three separate outfalls (clean water effluents, spent liquor and clarifier).

COMMENTS:

Loading requirements are based on the Control Order limit for suspended solids. BOD reduction is to be at the maximum degree practicable by 1990.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 10.0%.

IMIS NUMBER: 0001530005 SIC CODE: 271 MOE REGION: Northeast DISTRICT: North Bay

09/06/88

000153-00-0(5) MACMILLAN BLOEDEL LIMITED STURGEON FALLS DIVISION STURGEON FALLS REPORT DATE: 15 APR 88

CONTROL POINT: 0700 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 11270 | 11580 | 11442 | 12728 | 12501 | 10665 | 12328 | 12127 | 12630 | 13181 | 12024 | 10658 | 11927.83 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 41830 | 42880 | 36620 | 39910 | 34390 | 26950 | 32370 | 34430 | 35170 | 37370 | 42460 | 39920 | 37025 | |
| KG /DAY (BOD5 ) | REQUIREMENT | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 2580 | 3010 | 3200 | 2280 | 1870 | 1590 | 2100 | 2440 | 2560 | 2190 | 2480 | 2170 | 2372.5 | |
| KG /DAY (RSP ) | REQUIREMENT | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 3300 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Malette Kraft Pulp and Paper
& PLANT LOCATION: Smooth Rock Falls

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Mattagami R.
INDIRECT: Moose R. to James Bay

DESCRIPTION OF ACTIVITY: Softwood (Black spruce, Jack pine, Balsam fir) is converted by the bleached kraft processes into market kraft pulp.

EFFLUENT QUALITY: Contains suspended organic compounds from pulping process. Also contains chemicals that affect the alkalinity of the receiver.

EFFLUENT TREATMENT: Raw suspended solids waste loads are reduced in the mill by recovery systems for wet bark, reject knots from unbleached pulp and bleached fibre from spills. A steam stripper removes organic compounds (some odourous) from condensates. The total mill effluent passes through a primary clarifier, a settling pond and a foam pond.

DISCHARGE TYPE: Continuous diffuser to Mattagami River.

COMMENTS:

The August 7, 1985 Control Order was still in effect with limits set for BOD of 20 tonnes/day and a 30 day rolling average of 10.0 tonnes/day. the maximum daily net loading for suspended solids is 4.5 tonnes and the 30 day rolling average limit is 9.0 tonnes. The following number of exceedances occurred in 1987: BOD daily limit - 17 days; BOD 30 day rolling average - 59 days; suspended solids daily maximum - 37 days; suspended solids 30 day rolling average - 187 days. Exceedances are under investigation by Enforcement and Investigation Branch.
Some exceedances have been attributed to process upsets and inadequate retention time in the settling pond. The mill obtained approval for modifications to the settling pond and the work has been completed. A number of exceedances occurred during these modifications. Approval has been requested for a rerouting of some internal sewers to maximize the use of the primary clarifier. A total of 7 compliance audit samples were taken in 1987. 70% were within 25% of MOE results.

Three trout bioassays conducted by MOE in 1987 indicated the final effluent was toxic to fish. Three bioassays estimated that it would take statistically 40.1%, 21.4% and 13.4% effleunt to kill 50% of the test fish by the end of the four days exposure.

IMIS NO.: 0000860502 SIC CODE: 271 MOE REGION: Northeast DISTRICT: Timmins
09/01/88

000086-05-0(2) MALETTE KRAFT PULP & POWER CO. LTD. SMOOTH ROCK FALLS REPORT DATE: 07 JUN 88

CONTROL POINT: 0400 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 49117 | 50467 | 50046 | 48781 | 56995 | 61108 | 61045 | 59856 | 61699 | 62465 | 52430 | 49360 | 55280.75 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 7500 | 5500 | 4500 | 5600 | 6700 | 6900 | 6400 | 7400 | 6400 | 11300 | 17500 | 9000 | 7891.666 | |
| KG /DAY (BOD5 ) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | S/C |
| PH | ACTUAL | 7 | 9.5 | 4.1 | 3.5 | 5.05 | 5.2 | 6.8 | 4.4 | 5.4 | 4.6 | 5.8 | 5.2 | 5.545833 | 4 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 3200 | 4100 | 4300 | 5300 | 5400 | 7400 | 3700 | 5000 | 3800 | 7400 | 4700 | 3000 | 4775 | |
| KG /DAY (RSP ) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | S/C |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 89% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Mattabi Mines Ltd.
& PLANT LOCATION: Sturgeon Lake Area,
District of Kenora

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Bell River, Sturgeon Lake
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Crushed ore is milled into zinc concentrate

EFFLUENT QUALITY: Contains dissolved metals of copper, zinc, lead, etc.

EFFLUENT TREATMENT: Tailings decant is limed for metals precipitation, metal hydroxide precipitates are settled, clearwater recycled to mill process, decant effluent discharged.

DISCHARGE TYPE: continuous

COMMENTS:

The tertiary treatment pond was taken out of service in early 1987. Final effluent is now decant water from the reclaim pond. Efforts to reduce the contaminant loadings from mine creek have been directed at collecting various run-offs and diverting them to tailings for treatment.

Four of five trout bioassays conducted in 1987 indicated the final effluent to have been not acutely lethal to test fish. One bioassay, determined statistically that it would require 45.6% effluent to kill 50% of the test fish after a four day exposure.

IMIS NO.: 0042110106 SIC CODE: 0592, 0594 MOE REGION: Northwest DISTRICT: Kenora

08/25/88

004211-01-0(6) NORANDA INC MATTABI MINES LTD KENORA REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987 TERTIARY EFFLUENT/RECLAIM OVERFLOW

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVERAGE | EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 9814 | U | U | U | U | U | U | U | U | 8836 | 11109 | 9690 | 3287.416 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| IRON UNF.TOT. | ACTUAL | 0.25 | 0.315 | 0.35 | 0.36 | 0.414 | 0.26 | 0.16 | 0.52 | 0.478 | 0.54 | 0.253 | 0.36 | 0.355 | |
| MG/L (FEUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| PH | ACTUAL | 10.55 | 10.45 | 10.975 | 10.042 | 9.61 | 9.985 | 9.012 | 8.113 | 8.638 | 8.61 | 10.788 | 10.863 | 9.803 | 3 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 1 | 11.667 | 7 | 16.2 | 9.75 | 10.75 | 11.6 | 5 | 9.75 | 3.6 | 14 | 1 | 8.443083 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 1 |
| ZINC UNF.TOT. | ACTUAL | 0.275 | 0.2 | 0.125 | 0.227 | 0.254 | 0.215 | 0.725 | 0.625 | 0.92 | 0.718 | 0.265 | 0.14 | 0.39075 | |
| MG/L (ZNUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

ND= NO DISCHARGE
U= UNKNOWN

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

004211-01-0(6) NORANDA INC MATTABI MINES LTD KENORA REPORT DATE: 24 MAY 88

CONTROL POINT: 0200 DATA FOR 1987 MINE CREEK

CONCENTRATION PARAMETERS

| | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | EXCEEDANCES | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW M3 /DAY (FTFLOW) | ACTUAL | U | U | U | U | U | U | U | U | 430 | 320 | 500 | 130 | 115 | | |
| | REQUIREMENT | | | | | | | | | | | | | | | |
| IRON UNF.TOT. MG/L (FEUT ) | ACTUAL | 0.118 | 0.54 | 0.938 | 0.815 | 0.508 | 0.995 | 0.805 | 0.985 | 0.585 | 0.628 | 0.555 | 0.703 | 0.68125 | | |
| | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | |
| PH (PH ) | ACTUAL | 6.6 | 6.6 | 6.1 | 6.1 | 6.5 | 6.4 | 6.4 | 6.2 | 6.2 | 6.5 | 6.4 | 6.4 | 6.366666 | 0 | |
| | GUIDELINE | | | | | | | | | | | | | | | |
| ZINC UNF.TOT. MG/L (ZNUT ) | ACTUAL | 9.79 | 9.25 | 24.84 | 23.2 | 20.7 | 20.7 | 30 | 25.4 | 22.7 | 13.8 | 27.3 | 19.6 | 20.60666 | | |
| | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 12 | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

U= UNKNOWN

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 67% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: McBean Mines Ltd. Dobie

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Victoria Creek to Misema River to Blanch river
INDIRECT:

DESCRIPTION OF ACTIVITY: Gold mining and Recovery Using Merryl-Crowe Process.

EFFLUENT QUALITY: Contains cyanide, copper, nickel, zinc, solids.

EFFLUENT TREATMENT: $SO_2$/air cyanide distruct system + tailings ponds.

DISCHARGE TYPE: continuous

COMMENTS:

The company discharged effluent from April - October 1987. The operation was shutdown in October 1987. Due to difficulty in accessing the final discharge, the report shows results at the internal control point. Historical data shows the company is able to meet the guideline at the final discharge. Lack of samples was due to company staff changes. When company resumes operation, sampling at final discharge will be required.

Six trout bioassays conducted in 1987 indicated the intermediate control point effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 1.0% to 10.0%.

IMIS NO.: 0051730000 SIC CODE: 052 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

005173-00-0(0) MCBEAN MINE DOBIE REPORT DATE: 15 APR 88

CONTROL POINT: 0201 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARSENIC FIL.TOT. | ACTUAL | | | 0.1 | | | | | | | | | | 0.1 | |
| MG/L (ASFT) | GUIDELINE | | | 0.5 | | | | | | | | | | 0.5 | |
| CYANIDE FREE | ACTUAL | | | | 3.6 | | | 3.6 | 5 | | 15.1 | | | 6.825 | |
| MG/L (CCNAUR) | GUIDELINE | | | | 2 | | | 2 | 2 | | 2 | | | 2 | 4 |
| COPPER FIL.TOT. | ACTUAL | | | | 0.5 | 0.4 | 0.5 | 0.9 | 7.4 | | 2.1 | | | 1.967 | |
| MG/L (CUUT) | GUIDELINE | | | | 1 | 1 | 1 | 1 | 1 | | 1 | | | 1 | 2 |
| IRON FIL.TOT. | ACTUAL | | | | 0.4 | 0.1 | 0.1 | 0.4 | 0.8 | | 0.4 | | | 0.367 | |
| MG/L (FEUT) | GUIDELINE | | | | 1 | 1 | 1 | 1 | 1 | | 1 | | | 1 | 0 |
| PH | ACTUAL | | | | 8 | 7.9 | 8.1 | 8.8 | 8.1 | | 8.1 | | | 8.17 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC FIL.TOT. | ACTUAL | | | | | | 0.1 | 0.1 | 0.2 | | 0.3 | | | 0.175 | |
| MG/L (ZNUT) | GUIDELINE | | | | | | 1 | 1 | 1 | | 1 | | | 0.4 | 0 |
| ZINC UNF.TOT. | ACTUAL | | | | 0.1 | 0.1 | | | | | | | | 0.1 | |
| MG/L (ZNUT) | GUIDELINE | | | | 1 | 1 | | | | | | | | 1 | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 TIMES OUT OF 29, FOR A TOTAL COMPLIANCE RECORD OF 79% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Mitsubishi Canada Inc.
& PLANT LOCATION: Midland

INDUSTRIAL SECTOR:

RECEIVING WATERBODY: DIRECT: Wye River
INDIRECT: Lake Huron ( Georgian Bay )

DESCRIPTION OF ACTIVITY: Manufactures television tubes.

EFFLUENT QUALITY: Contains trace organics

EFFLUENT TREATMENT: Chemical Flocculation - Sedimentation

DISCHARGE TYPE: Continuous - treated wastewater combines with cooling waters, roof and parking lot drainage prior to discharge.

COMMENTS:

Certificate of Approval #4-300-002-87-876 limits fluoride discharge to 500 kg per four week period and suspended solids concentration to 20mg/L. Company is proposing adequate residence time in Lagoon cell #1to improve suspended solids removal.

IMIS NUMER: 0001880004 SIC CODE: 334 3399 MOE REGION: Central DISTRICT: Barrie

08/26/88

000188-00-0(4) MITSUBISHI ELECTRONICS INDUSTRIES CANADA INC MIDLAND REPORT DATE: 19 SEP 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 969 | 947 | 938 | 838 | 855 | 971 | 1037 | 1033 | 1082 | 1044 | 1059 | 1024 | 983 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| CHROMIUM +6 | ACTUAL | 0.162 | 0.118 | 0.085 | 0.064 | 0.09 | 0.09 | 0.141 | 0.111 | 0.179 | 0.155 | 0.11 | 0.096 | 0.117 | |
| KG /DAY (CR6UR ) | GUIDELINE | 0.969 | 0.947 | 0.938 | 0.838 | 0.855 | 0.971 | 1.04 | 1.03 | 1.08 | 1.04 | 1.06 | 1.02 | 0.983 | 0 |
| FLUORIDE UNF.TOT. | ACTUAL | 4.46 | 4.64 | 4.78 | 4.61 | 3.93 | 7.57 | 4.46 | 3.93 | 3.35 | 5.22 | 5.72 | 5.84 | 4.88 | 0 |
| KG /DAY (FFIDUT) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |
| PH | ACTUAL | 8.1 | 7.9 | 7.5 | 7.8 | 7.6 | 7.6 | 7.3 | 7.9 | 10 | | | 8.1 | 7.98 | |
| (PH) | GUIDELINE | | | | | | | | | | | | | | 1 |
| RESIDUE FILTERED | ACTUAL | 19.38 | 19.89 | 29.08 | 12.57 | 14.54 | 11.65 | 10.37 | 11.36 | 22.72 | 17.75 | 22.24 | 48.13 | 19.97 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE TOTAL | ACTUAL | 419 | 460 | 497 | 441 | 427 | 409 | 394 | 315 | 454 | 468 | 517 | 506 | 442 | |
| KG /DAY (RST ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS 5.50 - 9.50

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 34, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Nestle
& PLANT LOCATION: Chesterville

INDUSTRIAL SECTOR: Food and beverage

RECEIVING WATERBODY: DIRECT: South Nation R.
INDIRECT: Ottawa R.

DESCRIPTION OF ACTIVITY: Manufacture of food and beverage products.

EFFLUENT QUALITY: Contains suspended solids (insoluble organics) and food organics.

EFFLUENT TREATMENT: Secondary treatment with 4 month aeration lagoon.

DISCHARGE TYPE: Continuous - except from June 15 to October 15.

COMMENTS:

Certificate of Approval for phosphorus removal equipment issued Jan 20/88. Equipment installed and field tested May 1988. Expect compliance for all parameters over last half of 1988.

IMIS NUMER: 0000900001 SIC CODE: 1089 MOE REGION: Southeast DISTRICT: Cornwall

08/26/88

000090-00-0(1) NESTLE CHESTERVILLE REPORT DATE: 26 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 360 | 362 | 918 | 2313 | 510 | 456 | | | | 878 | 2172 | | 996 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | 2045 | 2045 | 2045 | 2045 | 2045 | 2045 | | | | 2045 | 2045 | | 2045 | 2 |
| BOD 5 DAY | ACTUAL | 12 | 21 | 17 | 20 | 17 | 17.4 | | | | 6 | 4.5 | | 14.4 | |
| MG/L (BOD5 ) | REQUIREMENT | 15 | 15 | 15 | 15 | 15 | 15 | | | | 15 | 15 | | 15 | 5 |
| PHOSPHOR UNF.TOT. | ACTUAL | 3.6 | 4.6 | 5.5 | 7.8 | 10.4 | 3.3 | | | | 3.9 | 3.2 | | 5.3 | |
| MG/L (PPUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | | | | 1 | 1 | | 1 | 8 |
| RESIDUE PARTIC. | ACTUAL | 4.6 | 11 | 4 | 11 | 36 | 6.4 | | | | 4.8 | 4.6 | | 10.3 | |
| MG/L (RSP ) | REQUIREMENT | 15 | 15 | 15 | 15 | 15 | 15 | | | | 15 | 15 | | 15 | 1 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 16 TIMES OUT OF 32, FOR A TOTAL COMPLIANCE RECORD OF 50% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Nitrochem Inc.
& PLANT LOCATION: Maitland

INDUSTRIAL SECTOR: Inorganic Chemicals

RECEIVING WATERBODY: DIRECT: St. Lawrence River
INDIRECT:

DESCRIPTION OF ACTIVITY: Nitric acid and different grades of ammonia based fertilizer are made.

EFFLUENT QUALITY: Contains nitrogenous wastes.

EFFLUENT TREATMENT: Equalization pond goes into new Aquachem treatment unit for reclamation of nitrogenous wastes.

DISCHARGE TYPE: Continuous

COMMENTS:

Improvements in wastewater quality occurred in mid - 1987 with the startup of the Aquachem unit which is still experiencing process difficulties. Further improvements being planned by company. Requirement and Direction will be amended in 1988 to set objectives for Control point 0200 and/or combined discharges of wastewater. Prosecution is under investigation for failure to meet requirements of Requirement and Direction on effluent treatment unit. Environmental audit is underway by company.

IMIS NUMBER: 0001710003 SIC CODE: 372 MOE REGION: Southeast DISTRICT: Kingston

09/01/88

000171-00-0(3) NITROCHEM MAITLAND REPORT DATE: 14 JUN 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/005/ ST. LAWRENCE R.

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2180 | 1980 | 2290 | 2280 | 2400 | 1900 | 1540 | 1105 | 1225 | 1113 | 1400 | 1223 | 1719.666 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| KJELDAHL ORGANIC | ACTUAL | 1168 | 1170 | 1553 | 1251 | 1788 | 671 | 194 | 102 | 91 | 103 | 120 | 134.3 | 695.4416 | 0 |
| KG /DAY (NNKUR ) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |
| NO2+NO3N UNF.REAC | ACTUAL | 672 | 583 | 635 | 594 | 935 | 474 | 114.3 | 88 | 67 | 49 | 33 | 21.5 | 355.4833 | 0 |
| KG /DAY (NNOTUR) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |
| PH | ACTUAL | 8.1 | 8.9 | 9.1 | 8.9 | 8.6 | 8.6 | 9.4 | 9.5 | 9.6 | 9.6 | 9.9 | 10.1 | 9.191666 | 3 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PO4 FIL.REAC | ACTUAL | 0.9 | 0.7 | 0.5 | 0.7 | 0.6 | 0.7 | 0.4 | 0.3 | 0.6 | 0.6 | 0.5 | 0.5 | 0.583333 | 0 |
| KG /DAY (PPO4FR) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Noranda-Hemlo Inc.
& PLANT LOCATION: Marathon

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Lim Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling.

EFFLUENT QUALITY: Heavy metals, suspended solids, pH, cyanide.

EFFLUENT TREATMENT: Approved treatment utilizing copper sulphate and ferric sulphate in addition to cyanide oxidation of effluent. Disposal area decant to Lim Lake. Mill site sedimentation pond effluent to Cedar Creek.

DISCHARGE TYPE: continuous

COMMENTS:

In compliance. No discharge January to June.

Four trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 18.2% to 50.7%.

IMIS NUMBER: 0042110205 SIC CODE: 0592 MOE REGION: Northwest DISTRICT: Thunder Bay

07/05/88

004211-02-0(5) NORANDA-HEMLO INC. MARATHON REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | ND | ND | ND | ND | ND | ND | NA | NA | NA | NA | NA | NA | 0 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ARSENIC UNF.TOT. | ACTUAL | | | | | | | NA | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.000833 | |
| MG/L (ASUT ) | GUIDELINE | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| CYANIDE FREE | ACTUAL | | | | | | | 0.06 | 0.39 | 0.075 | 0.1 | 0.112 | 0.061 | 0.133 | |
| MG/L (CCNFUR) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | | | | | | | 0.42 | 0.889 | 0.36 | 0.63 | 0.645 | 0.82 | 0.627333 | |
| MG/L (CUUT ) | GUIDELINE | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| IRON UNF.TOT. | ACTUAL | | | | | | | 0.187 | 0.21 | 0.12 | 0.09 | 0.085 | 0.12 | 0.135333 | |
| MG/L (FEUT ) | GUIDELINE | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| MERCURY UNF.TOT. | ACTUAL | | | | | | | 0.001 | 0.002 | 0.005 | 0.003 | 0.001 | 0.006 | 0.003 | |
| UG/L (HGUT ) | GUIDELINE | | | | | | | | | | | | | | |
| NICKEL UNF.TOT. | ACTUAL | | | | | | | 0.1 | 0.04 | 0.08 | 0.15 | 0.185 | 0.27 | 0.1375 | |
| MG/L (NIUT ) | GUIDELINE | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| LEAD UNF.TOT. | ACTUAL | | | | | | | NA | NA | NA | NA | NA | NA | 0 | |
| MG/L (PBUT ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | | | | | | | 9.11 | 8 | 7.54 | 7.07 | 8.05 | 7.33 | 7.85 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | | | | | | | 0.01 | 0.01 | 0.01 | 0.01 | 0.015 | 0.02 | 0.0125 | |
| MG/L (ZNUT ) | GUIDELINE | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

ND= NO DISCHARGE

NA= NOT AVAILABLE

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Noranda Inc., Lyon Lake Division
Sturgeon Lake Area,
District of Thunder Bay

INDUSTRIAL SECTOR: Metal Mining , Smelting, Refining

RECEIVING WATERBODY: DIRECT: Lyon Lake
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Ore is removed from underground and open pit for zinc recovery at Mattabi Mines Ltd.

EFFLUENT QUALITY: Treated minewater contains dissolved metals of copper, zinc, lead, etc.

EFFLUENT TREATMENT: Lime precipitation of dissolved metals, settling of metal hydroxide precipitates.

DISCHARGE TYPE: continuous decanting

COMMENTS:

During 1986 it was discovered that the effluent flow was short circuiting in the two pond treatment system. The flow pattern was improved in these ponds and a tertiary pond was added in 1987.

Three of five trout bioassays conducted in 1987 indicated the final effluent to have been acutely lethal to the test fish while the other two samples were not acutely lethal. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 21.4%, 24% and 40.4%.

IMIS NO.: 0042110114 SIC CODES: 0592, 0594 MOE REGION: Northwest DISTRICT: Kenora

08/25/88

004211-01-1(4) NORANDA INC LYON LAKE DIVISION KENORA REPORT DATE: 14 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IRON UNF. TOT. | ACTUAL | 0.075 | 0.27 | 0.215 | 0.452 | 0.322 | 0.17 | 0.065 | 0.122 | 0.083 | 0.09 | 0.07 | 0.1 | 0.1695 | |
| MG/L (FEUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| PH | ACTUAL | 7.7 | 7.6 | 9.8 | 8.8 | 7.3 | 7.8 | 7.1 | 8 | 9.4 | 10 | 10.5 | 10.5 | 8.708333 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | 2.05 | 3.16 | 0.17 | 0.53 | 1.44 | 1 | 0.76 | 1.07 | 0.15 | 0.08 | 0.12 | 0.07 | 0.883333 | |
| MG/L (ZNUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 4 |
| RESIDUE PARTICUL | ACTUAL | 2 | 10 | 6 | 15 | 8 | 14 | 9 | 16 | 4 | 3 | 2 | 1 | 7.5 | |
| MG/L (RSP) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 1 |

NOTE: PH LIMIT 5.5-10.6 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C-SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 90% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Noranda Mines Ltd. GECO Div.
& PLANT LOCATION: Manitouwadge

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Black R. to Pic R.
INDIRECT: 154 km to Lake Superior

DESCRIPTION OF ACTIVITY: Base metal mining.

EFFLUENT QUALITY: Contains suspended solids, heavy metals, and ammonia.

EFFLUENT TREATMENT: pH adjustment and clarification of metal precipitates from tailing area and seepage.

DISCHARGE TYPE: Continuous

COMMENTS:

There were three excedances of the suspended solids in February, April and November. Ammonia exceedance due to historical usage of ammonia in milling process. An ammonia reduction program implemented in 1987 which is expected to show reductions in effluent discharges at some point in the future.

The final effluent is normally toxic to fish. Six trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 13.4% to 22.6%.

IMIS NUMBER: 0001800002 SIC CODE: 0592 MOE REGION: Northwest DISTRICT: Thunder Bay

09/26/88

000180-00-0(2) NORANDA MINES LIMITED GECD DIV. MANITOUWADGE REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2388 | 2224 | 4580 | 6320 | 5129 | 3945 | 3900 | 4632 | 4514 | 4547 | 4318 | 3483 | 4165 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.28 | 0.29 | 0.73 | 0.5 | 0.26 | 0.12 | 0.17 | 0.19 | 0.2 | 0.26 | 0.37 | 0.11 | 0.29 | |
| MG/L (CUUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| IRON UNF.TOT. | ACTUAL | 0.97 | 0.97 | 0.66 | 0.87 | 0.73 | 0.45 | 0.37 | 0.32 | 0.54 | 0.37 | 0.65 | 0.41 | 0.609166 | |
| MG/L (FEUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| NH3-N FIL.REAC | ACTUAL | 72 | 68 | 103 | 109 | 125 | 149 | 99 | 68 | 58 | 67 | 60 | 54 | 86 | |
| MG/L (NNH3FR) | GUIDELINE | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 12 |
| PH | ACTUAL | 9 | 9 | 8.9 | 9.1 | 9 | 8.9 | 9 | 9.1 | 9 | 9.1 | 9.1 | 9.4 | 9.05 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 11 | 31 | 10 | 18 | 6 | 10 | 12 | 14 | 14 | 11 | 16 | 10 | 13.58333 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 3 |
| ZINC UNF.TOT. | ACTUAL | 0.1 | 0.09 | 0.08 | 0.09 | 0.09 | 0.09 | 0.1 | 0.07 | 0.09 | 0.06 | 0.14 | 0.23 | 0.1025 | |
| MG/L (ZNUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 15 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 79% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Northern Wod Preservers Inc.
& PLANT LOCATION: Thunder Bay

INDUSTRIAL SECTOR: Wood Preserving

RECEIVING WATERBODY: DIRECT: Thunder Bay Harbour
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Timber, ties and utility poles are treated with creosote or pentachlorophenol preservative.

EFFLUENT QUALITY: Effluent contains low levels of phenols, pentachlorophenol and traces of dioxin.

EFFLUENT TREATMENT: Secondary activated sludge.

DISCHARGE TYPE: continuous subsurface

COMMENTS:

A Control Order was issued in Nov. 1987 to control suspended solids, phenol and pentachlorophenol.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NO.: 0001820000 SIC CODES: 251, 2591 MOE REGION: Northwest DISTRICT: Thunder Bay

08/25/88

000182-00-0(0) NORTHERN WOOD PRESERVERS THUNDER BAY REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | | | 13200 | 13200 | 8300 | 8700 | 11600 | 13215 | 13215 | ND | 19822 | 14500 | 12861.33 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PENTACHLOROPHENOL | ACTUAL | 412.5 | 1085 | 332.5 | 172 | 252.5 | 325 | 60 | 143 | 780 | | 1420 | 1337 | 574.5 | |
| NG/L (X3PCPH) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 2.3 | 1.2 | 9.3 | 6.6 | 5.6 | 3 | 2.2 | 1.5 | 3 | | 4.2 | 1.2 | 3.645454 | |
| UG/L (PHNOL) | GUIDELINE | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | 20 | 20 | 20 | 0 |
| RESIDUE PARTIC. | ACTUAL | 5.5 | 15 | 7.3 | 5 | 6 | 6 | 7.5 | 16.2 | 7.3 | | 8 | 8 | 8.345454 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | | 15 | 15 | 15 | 1 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Norton Company
& PLANT LOCATION: Niagara Falls

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF PROCESS: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT QUALITY: There are 4 discharges to the Welland River; results are a composite of all discharges.

EFFLUENT TRATMENT: Oil water separation, pH adjustment and solids precipitation on product process waste water are carried out.

DISCHARGE TYPE: continuous through a submerged outfall

COMMENTS:

In compliance. Loadings are summation of all four sewer discharges.

Four trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001650001 SIC CODE: 357 MOE REGION: West Central DISTRICT: Welland

07/20/88

000165-00-0(1) NORTON COMPANY NIAGARA FALLS REPORT DATE: 13 SEP 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/5130 TWELVE MILE CR.

INCLUDES CONTROL POINTS: 0100 0200 0300 0400

DATA FOR 1987

| FLOW/LOADING | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 12426 | 12426 | 12426 | 12426 | 12426 | 7194 | 12426 | 12426 | 10137 | 12426 | 10137 | 12426 | 11608.5 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7 | 6.73 | 7.07 | 6.77 | 6.83 | 8.78 | 5.8 | 5.78 | 8 | 7.87 | 7.4 | 7.73 | 7.55 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 8.16 | 138.975 | 4.896 | 70.848 | 37.605 | 0 | 16.35 | 10.464 | 0 | 31.056 | 0 | 0 | 26.5295 | |
| KG /DAY (RSP ) | GUIDELINE | 186.4 | 186.4 | 186.4 | 186.4 | 186.4 | 118.71 | 186.4 | 186.4 | 186.4 | 186.4 | 186.4 | 186.4 | 180.7591 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 12.3 | 12.3 | 12.3 | 12.3 | 12.3 | 7.194 | 12.426 | 12.426 | 0 | 12.426 | 0 | 12.426 | 9.8665 | |
| KG /DAY (SOLEXT) | GUIDELINE | 186.4 | 186.4 | 186.4 | 186.4 | 186.4 | 118.71 | 186.4 | 186.4 | 186.4 | 186.4 | 186.4 | 186.4 | 180.7591 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: NOVACOR Ltd.
& PLANT LOCATION: (formerly Union Carbide Canada Ltd.)
Corunna

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock from neighbouring petroleum refineries is converted into polyethylene resins.

EFFLUENT QUALITY: Contains organic compounds at trace levels

EFFLUENT TREATMENT:

DISCHARGE TYPE: batch discharge through an extended outfall

COMMENTS:

Ten monthly and annual exceedance of suspended solids. Additional control equipment installed and undergoing commissioning to address suspended solids problem.

IMIS NUMBER: 0000380105 SIC CODE: 3731 MOE REGION: Southwest DISTRICT: Sarnia

08/31/88

000038-01-0(5) NOVACOR CHEMICALS LTD. (FORMERLY UNION CARBIDE CAN SARNIA

REPORT DATE: 13 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1555.2 | 1296 | 1555.2 | 1382.4 | 1641.6 | 1900.8 | 1728 | 1728 | 2073.6 | 1728 | 1900.8 | 2419.2 | 1742.4 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| K'DAHL N TOTAL | ACTUAL | 1.75 | 4.4 | 2.64 | 3.3 | 4.3 | 13.87 | 5.65 | 5.9 | 1.2 | 1.03 | 1.75 | 3.46 | 4.104166 | |
| KG /DAY (NNTKUT) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8 | 8 | 7.9 | 7.8 | 7.8 | 7.7 | 7.5 | 7.4 | 6.9 | 7.2 | 7.3 | 7.5 | 7.583333 | 0 |
| | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.7 | 0.9 | 0.65 | 0.8 | 0.55 | 1.41 | 0.65 | 0.63 | 0.5 | 0.4 | 0.42 | 0.53 | 0.678333 | |
| KG /DAY (PPUT ) | GUIDELINE | 1.5552 | 1.296 | 1.5552 | 1.3824 | 1.6416 | 1.9008 | 1.728 | 1.728 | 2.0736 | 1.728 | 1.9008 | 2.4192 | 1.7424 | 0 |
| RESIDUE FILTERED | ACTUAL | 408.8 | 394.13 | 532.2 | 354.9 | 417.4 | 460 | 394.22 | 369.34 | 382.6 | 338.3 | 361.4 | 456 | 405.7741 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 22.5 | 25.3 | 62.4 | 62.8 | 41 | 87 | 46.3 | 37.4 | 27.1 | 49.7 | 32.6 | 71.3 | 47.11666 | |
| KG /DAY (RSP ) | GUIDELINE | 23.328 | 19.44 | 23.328 | 20.736 | 24.624 | 28.512 | 25.92 | 25.92 | 31.104 | 25.92 | 28.512 | 36.288 | 26.136 | 10 |
| CARBON TOTAL | ACTUAL | 17.5 | 14.8 | 19.3 | 21.2 | 27.03 | 40.1 | 17.74 | 12.83 | 17.3 | 5.6 | 12.8 | 26.2 | 19.36666 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 10 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 72% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Ogilvie Mills Ltd.
& PLANT LOCATION: Thunder Bay

INDUSTRIAL SECTOR: Food and beverage

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: 3 km to Lake Superior (Thunder Bay)

DESCRIPTION OF ACTIVITY: Starch and gluten are separated from grain flour.

EFFLUENT QUALITY: Contains suspended solids (wheat husk) and starches (glutens).

EFFLUENT TREATMENT: Secondary biological anaerobic / aerobic.

DISCHARGE TYPE: continuous surface

COMMENTS:

Bod not in compliance for four months due to treatment plant bypassing to avoid odour problems. Control Order limits BOD5 to 900 kg/day. Treatment plant is state-of-the-art for BOD effluent reduction. The gas train has been modified to allow biogas in the boiler. Steps are currently being taken to reduce the volume of effluent requiring treatment.

Six trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 8.0% to 13.4%.

IMIS NUMBER: 0000880005 SIC CODE: 105 MOE REGION: Northwest DISTRICT: Thunder Bay

08/25/88

000088-00-0(5) OGILVIE MILLS LTD. THUNDER BAY REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1139 | 1193 | 1042 | 988 | 1075 | 1064 | 1105 | 1196 | 1216 | 1002 | 1040 | 1139 | 1099.916 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 992 | 1020 | 643 | 795 | 798 | 778 | 1140 | 1210 | 810 | 550 | 830 | 560 | 843.8333 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 4 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 67% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Omstead Foods Ltd.
& PLANT LOCATION: Wheatley

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Muddy Creek
INDIRECT: 1.0 km Lake Erie

DESCRIPTION OF ACTIVITY: Fish is processed and vegetables grown locally are processed/frozen.

EFFLUENT QUALITY: Contains fish and vegetable processing waste (BOD, suspended solids).

EFFLUENT TREATMENT: Extended aeration system.

DISCHARGE TYPE: continuous, when plant is operating, through an open outfall

COMMENTS:

Exceedance of BOD, suspended solids and phosphorus guidelines. Engineering study of wastewater treatment system underway. Application for Certificate of Approval for proposed program to upgrade facility to meet present requirements submitted to M.O.E.

IMIS NUMBER: 0001050004 SIC CODES: 102, 103, 1032 MOE REGION: Southwest DISTRICT: Windsor

09/01/88

000105-00-0(4) OMSTEAD FOODS LIMITED WHEATLEY REPORT DATE: 31 AUG 88

S U M M A R Y FOR EMIS. TYPE: 13 CLARIFIER EFFLUENT DISCHARGED INTO: 02/003/2280 MUDDY CR.

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1513 | 1783 | 2336 | 2803 | 2669 | 3399 | 6382 | 7776 | 8077 | 8541 | 7341 | 4798 | 4784.833 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 54.8 | 68.2 | 48.7 | 23.6 | 32 | 23.1 | 24.6 | 24.7 | 52.8 | 59.1 | 48.7 | 59.9 | 43.35 | |
| KG /DAY (BOD5 ) | GUIDELINE | 22.695 | 26.745 | 35.04 | 42.045 | 40.035 | 50.985 | 95.73 | 116.64 | 121.155 | 128.115 | 110.115 | 71.97 | 71.772 | 3 |
| NH3-N TOTAL | ACTUAL | 2.1 | 7 | 22 | 34.7 | 5.2 | 0.9 | 0.8 | 0.9 | 3 | 2.3 | 2.4 | 11.98 | 7.773 | |
| KG /DAY (NNHTUR) | GUIDELINE | 15.13 | 17.83 | 23.36 | 28.03 | 26.69 | 33.99 | 63.82 | 77.76 | 80.77 | 85.41 | 73.41 | 47.98 | 47.848 | 1 |
| PH | ACTUAL | 6.8 | 6.5 | 6.7 | 6.9 | 6.4 | 6.6 | 6.9 | 7.1 | 7.1 | 7.05 | 7.15 | 7.25 | 6.871 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.9 | 0.9 | 1.5 | 0.8 | 3.8 | 2.9 | 6.8 | 7.5 | 8.1 | 2.6 | 1.2 | 0.5 | 3.12 | |
| KG /DAY (PPUT ) | GUIDELINE | 1.513 | 1.783 | 2.336 | 2.803 | 2.669 | 3.399 | 6.382 | 7.776 | 8.077 | 8.541 | 7.341 | 4.798 | 4.785 | 3 |
| RESIDUE PARTIC. | ACTUAL | 91 | 45.9 | 42.5 | 0.2 | 81.2 | 31.6 | 41.9 | 47.4 | 66.7 | 95.6 | 81.2 | 48.8 | 56.167 | |
| KG /DAY (RSP ) | GUIDELINE | 22.695 | 26.745 | 35.04 | 42.045 | 40.035 | 50.985 | 95.73 | 116.64 | 121.155 | 128.115 | 110.115 | 71.97 | 71.772 | 4 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 82% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Lambton TGS
Courtright

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal is burned

EFFLUENT QUALITY: Hot water

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMMENTS:

Two minor monthly exceedances of effluent temperature due to high intake water temperatures. Ontario Hydro to modify procedures to compensate for a wider range of intake water temperature.

IMIS NUMBER: 0001841204 SIC CODE: 572 MOE REGION: Southwest DISTRICT: Sarnia

08/31/88

000184-12-0(4) ONTARIO HYDRO — LAMBTON TGS, COURTRIGHT — REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADINGS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW M3/DAY Million (FTFLOW) | ACTUAL | 74.3 | 84.2 | 81.8 | 62.4 | 84.1 | 87.9 | 82.9 | 87.9 | 93.3 | 62.5 | 65.7 | 97.4 | 80.37 | |
| TEMP RISE | ACTUAL | 15.1 | 16.7 | 15.2 | 14.3 | 13 | 14 | 14.1 | 13.8 | 13.6 | 13.6 | 14.5 | 13.7 | 14.3 | |
| (MAX) (FWTEMP) | REQUIREMENT | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 16.7 | 0 |
| MAX EFFLUENT | ACTUAL | 15.8 | 17 | 16.6 | 20.2 | 25.2 | 33.6 | 34.8 | 35.3 | 33.6 | 29.8 | 23.6 | 19.9 | 25.45 | |
| TEMP (FWTINC) | REQUIREMENT | 32.5 | 32.5 | 32.5 | 32.5 | 32.5 | 32.5 | 35 | 35 | 35 | 32.5 | 32.5 | 32.5 | 33.125 | 2 |
| RESIDUE PART | ACTUAL | 0 | 231550 | 0 | 436800 | 0 | 43950 | 33160 | 65925 | 93300 | 50000 | 0 | 194800 | 95790 | |
| KG/DAY (RSP) | GUIDELINE | 1114500 | 1263000 | 1227000 | 936000 | 1261500 | 1318500 | 1243500 | 1318500 | 1399500 | 937500 | 985500 | 1461000 | 1205500 | 0 |

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Pickering N.P.G.D. Generating Stns. A & B
Pickering

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY: Nuclear Power

EFFLUENT QUALITY: Temperature

EFFLUENT TREATMENT: Dilution (once through condenser cooling water).

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance.

IMIS NUMBER: 0001840206 (A) SIC CODE: 572
0001840214 (B)

MOE REGION: Central

DISTRICT: Toronto

06/16/88

000184-02-0(6) ONTARIO HYDRO PICKERING REPORT DATE: 26 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 5270000 | 5180000 | 5200000 | 5400000 | 5400000 | 5200000 | 4400000 | 4300000 | 5700000 | 9070000 | 9100000 | 9070000 | 5835454 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| WATER TEMP | ACTUAL | 16.3 | 16.7 | 17.2 | 18.9 | 18.8 | 23.1 | 20.3 | 18 | 12.8 | 20 | 17 | 14.1 | 17.8 | |
| DEG.C (FWTEMP) | GUIDELINE | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 0 |
| TEMP RISE | ACTUAL | 9.6 | 10.3 | 10.3 | 9.8 | 9.9 | 9.8 | 6.9 | 6.9 | 5.6 | 7.1 | 6.4 | 6.5 | 8.26 | |
| DEG.C (FWTINC) | GUIDELINE | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 0 |

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

000184-02-1(4) ONTARIO HYDRO PICKERING REPORT DATE: 26 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 10700000 | 10800000 | 10000000 | 9300000 | 11600000 | 10900000 | 11100000 | 10300000 | 10400000 | 9070000 | 10010000 | 9070000 | 10511000 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| WATER TEMP | ACTUAL | 16 | 15.3 | 14.8 | 17 | 17.6 | 20.7 | 26.1 | 29.2 | 27.3 | 17.5 | 19.1 | 18.8 | 19.9 | |
| DEG.C (FWTEMP) | GUIDELINE | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 0 |
| TEMP RISE | ACTUAL | 10.2 | 9.8 | 8.7 | 9 | 7.8 | 7.9 | 10.1 | 10.5 | 9.5 | 7.3 | 10.2 | 11 | 9.34 | |
| DEG.C (FWTINC) | GUIDELINE | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 0 |

NOTE: S/C -SEE COMMENT, 0* INDICATES INTAKE EXCEEDED DISCHARGE, PH-LIMITS -

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Ontario Hydro (TGS) Nanticoke

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

PROCESS TYPE: Coal fired thermal generating station.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Primary and secondary ash settling cells, primary and secondary settling lagoons.

DISCHARGE TYPE: Continuous

COMMENTS:

Water quality data applies to effluent from ash lagoon only. Wastewater from lagoon is mixed with condenser cooling water prior to discharge.

IMIS NUMBER: 0001840008 SIC CODE: 572 MOE REGION: West Central DISTRICT: Haldimand-Norfolk/Brant

02/88

000184-00-0(8) ONTARIO HYDRO NANTICOKE TGS NANTICOKE REPORT DATE: 26 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 46570 | 55555 | 56680 | 30410 | 34300 | 46740 | 43129 | 41806 | 43533 | 44582 | 44928 | 603936 | 91014.08 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHROMIUM UNF.TOT. | ACTUAL | 0.47 | 2.17 | 2.04 | 0.7 | 1.03 | 1.5 | 1.16 | 1.13 | <.44 | 1.07 | 1.08 | 1.45 | 1.11 | |
| KG /DAY (CRUT ) | REQUIREMENT | 4.657 | 5.5555 | 5.668 | 3.041 | 3.43 | 4.674 | 4.3129 | 4.1806 | 4.3528 | 4.4582 | 4.4928 | 60.3936 | 9.101366 | 0 |
| IRON UNF.TOT. | ACTUAL | 0 | 0 | 0 | 1.52 | 1.71 | 2.34 | <2.34 | <2.09 | 0 | 0 | 0 | 0 | 0.09 | |
| KG /DAY (FEUT ) | REQUIREMENT | 23.285 | 27.7775 | 28.34 | 15.205 | 17.15 | 23.37 | 21.562 | 20.9 | 21.7665 | 22.291 | 22.464 | 301.968 | 45.50658 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.37 | 0.55 | 0.57 | 0.3 | 0.17 | 0.23 | <.22 | <.21 | <.005 | 0.267 | 0.225 | 0.302 | 0.212 | |
| KG /DAY (PPUT ) | REQUIREMENT | 4.657 | 5.5555 | 5.668 | 3.041 | 3.43 | 4.674 | 4.312 | 4.18 | 4.353 | 4.4582 | 4.4928 | 60.3936 | 9.101258 | 0 |
| RESIDUE FILTERED | ACTUAL | 18666 | 25630 | 25576 | 8034 | 9344 | 14591 | 12568 | 17047 | 18336 | 12785 | 11382 | 19652 | 16134.25 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 0 | 305 | 176 | 0 | 9 | 608 | 0 | 0 | 1099 | 0 | 0 | 0 | 183.0833 | |
| KG /DAY (RSP ) | GUIDELINE | 698.55 | 833.325 | 850.2 | 456.15 | 514.5 | 701.1 | 646.935 | 627.09 | 652.995 | 668.73 | 673.92 | 9059.04 | 1365.211 | 1 |
| SULPHATE UNF.REAC | ACTUAL | 8736 | 10635 | 10302 | 4907 | 6035 | 7872 | 7419 | 9490 | 9055 | 7172 | 8292 | 13731 | 8637.166 | |
| KG /DAY (SSO4UR) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Nanticoke TGS
Nanticoke

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired thermal generating station.

EFFLUENT QUALITY:

EFFLUENT TREATMENT:

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMMENTS:

* Nanticoke TGS Tempering Exemption in effect July 1, 1983, and extended until July 1, 1990.

IMIS NUMBER: 0001840008 SIC CODE: 572 MOE REGION: West Central DISTRICT: Haldimand-Norfolk/Brant

08/26/88

000184-00-0(8) ONTARIO HYDRO NANTICOKE TGS NANTICOKE REPORT DATE: 01 JUN 88

CONTROL POINT: 0200 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 7780000 | 9620000 | 10050000 | 5771000 | 6034000 | 8885000 | 7267000 | 7176000 | 6766000 | 6082000 | 6810000 | 9806000 | 7670583. | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| WATER TEMP | ACTUAL | 7.9 | 8.2 | 8.7 | 11.2 | 16 | 19.6 | 25.1 | 27.1 | 24.7 | 18 | 15.3 | 10.2 | 16 | |
| DEG.C (FWTEMP) | GUIDELINE | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 35 | 0 |
| TEMP RISE | ACTUAL | 4.9 | 7.3 | 6 | 4.7 | 7.6 | 7.5 | 7.5 | 6.8 | 6.5 | 6.2 | 7.5 | 6.5 | 6.583333 | |
| DEG.C (FWTINC) | GUIDELINE | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 12.5 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Ontario Hydro Bruce N.P.G.S.
& PLANT LOCATION: Domestic Sewage Treatment Plant
Tiverton

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Plant treats sanitary wastes from the generating station complex

EFFLUENT QUALITY: Contains phosphorus, BOD and suspended solids

EFFLUENT TREATMENT: Secondary sewage treatment with phosphorus removal.

DISCHARGE TYPE: Continuous to Douglas Point outfall.

COMMENTS:

In compliance.

IMIS NUMBER: 0001840107 SIC CODE: 572 MOE REGION: Southwest DISTRICT: Owen Sound

06/17/88

000184-01-0(7) ONTARIO HYDRO BRUCE REPORT DATE: 19 SEP 88

NPD NGS - SEWAGE PROCESSING

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVERAGE | EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1492.677 | 1595.620 | 1492.677 | 1542.433 | 1492.677 | 1542.433 | 1492.677 | 1492.677 | 1542.433 | 1492.677 | 1542.433 | 1492.677 | 1517.841 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 3.209 | 4.069 | 1.940 | 1.388 | 3.060 | 2.159 | 2.463 | 1.791 | 1.465 | 2.239 | 1.620 | 2.538 | 2.328 | |
| KG/DAY (BOD5) | GUIDELINE | 22.390 | 23.934 | 22.390 | 23.137 | 22.390 | 23.137 | 22.390 | 22.390 | 23.137 | 22.390 | 23.137 | 22.390 | 22.768 | 0 |
| KJELDAHL | ACTUAL | 1.045 | 1.120 | 0.970 | 0.746 | 1.120 | 0.821 | 0.970 | 0.896 | 0.970 | 1.194 | 5.299 | 1.418 | 1.381 | |
| KG/DAY (NNKUR) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHORUS | ACTUAL | 0.373 | 0.399 | 0.373 | 0.308 | 0.373 | 0.463 | 0.672 | 0.746 | 0.540 | 0.970 | 0.848 | 0.746 | 0.568 | |
| KG/DAY (PPUT) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.10 | 7.10 | 7.05 | 7.05 | 7.30 | 7.20 | 6.90 | 6.70 | 7.30 | 7.45 | 7.50 | 7.70 | 7.20 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 290.326 | 325.404 | 297.789 | 341.077 | 312.716 | 279.131 | 292.565 | 265.697 | 280.623 | 275.399 | 260.472 | 346.301 | 297.292 | |
| KG /DAY (RSF ) | REQUIREMENT | | | | | | | | | | | | | | |
| RESIDUE PARTICUL | ACTUAL | 9.777 | 7.165 | 6.717 | 3.881 | 5.075 | 5.672 | 10.001 | 11.643 | 8.658 | 14.778 | 15.001 | 14.554 | 9.410 | |
| KG/DAY (RSP) | GUIDELINE | 22.390 | 23.934 | 22.390 | 23.137 | 22.390 | 23.137 | 22.390 | 22.390 | 23.137 | 22.390 | 23.137 | 22.390 | 22.768 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Bruce N.P.G.S. Generating Stns. A & B
Tiverton

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Nuclear Power

EFFLUENT QUALITY: Temperature

EFFLUENT TREATMENT: Dilution (once through condenser cooling water).

DISCHARGE TYPE: Continuous

COMMENTS:

In complaince. Temperature Rise guideline is 11.1 $^{0}$C from middle of month of April to the middle of the month of December. The rest of the year the guideline is 13.0 $^{0}$C.

IMIS NUMBER: 0001942507 SIC CODE: 572 MOE REGION: Southwest DISTRICT: Owen Sound

09/06/88

000194-25-0(7) ONTARIO HYDRO BRUCE REPORT DATE: 29 AUG 88

BRUCE NGS - A

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVERAGE | EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 10480000 | 10390000 | 12380000 | 13950000 | | 11260000 | 11380000 | 10670000 | | 13560000 | 11650000 | 11720000 | 11744000 | |
| M3/DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| WATER TEMP | ACTUAL | 14.0 | 13.1 | 12.4 | 15.2 | | 21.7 | 27.7 | 27.6 | | 23.5 | 18.4 | 15.5 | 18.91 | |
| DEG.C (FWTEMP) | GUIDELINE | 32.2 | 32.2 | 32.2 | 32.2 | | 32.2 | 32.2 | 32.2 | | 32.2 | 32.2 | 32.2 | 32.20 | 0 |
| TEMP RISE | ACTUAL | 11.2 | 11.0 | 9.2 | 9.2 | | 7.7 | 8.2 | 9.5 | | 10.2 | 9.7 | 9.7 | 9.56 | 0 |
| DEG.C (FWTINC) | GUIDELINE | 13 | 13 | 13 | S/C | | 11.1 | 11.1 | 11.1 | | 11.1 | 11.1 | S/C | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 20, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

000194-25-0(7) ONTARIO HYDRO BRUCE REPORT DATE: 14 JUN 88

BRUCE NGS - B

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVERAGE | EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 12560000 | 12320000 | 12780000 | 13110000 | 12910000 | 12700000 | 14250000 | 16360000 | 13460000 | | 16350000 | 16320000 | 13920000 | |
| M3/DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| WATER TEMP | ACTUAL | 11.8 | 12.3 | 12.8 | 13.7 | 17.2 | 22.0 | 27.1 | 25.7 | 26.6 | | 16.5 | 13.5 | 18.11 | |
| DEG.C (FWTEMP) | GUIDELINE | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | | 32.2 | 32.2 | 32.20 | 0 |
| TEMP RISE | ACTUAL | 9.8 | 10.3 | 9.5 | 9.0 | 9.8 | 9.8 | 9.6 | 9.1 | 9.4 | | 7.8 | 8.1 | 9.29 | |
| DEG.C (FWTINC) | GUIDELINE | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | | 11.1 | 11.1 | 11.10 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 22, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Ontario Hydro Bruce N.P.G.S.
& PLANT LOCATION: Heavy Water Plant
Tiverton

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: Lake Huron
INDIRECT:

DESCRIPTION OF ACTIVITY: Heavy water is produced for use in nuclear reactors.

EFFLUENT QUALITY: Temperature and dissolved hydrogen sulphide.

EFFLUENT TREATMENT: Continuous

DISCHARGE TYPE:

COMMENTS:

In compliance.

IMIS NUMBER: 0001840107 SIC CODE: 572 MOE REGION: Southwest DISTRICT: Owen Sound

09/06/88

000184-01-0(7) ONTARIO HYDRO BRUCE REPORT DATE: 14 JUN 88

BRUCE HEAVY WATER PLANT

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | AVERAGE | EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1730000 | | | | | | | 1760000 | 1760000 | 1720000 | 1730000 | 1720000 | 1736666. | |
| M3/DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| WATER TEMP | ACTUAL | 14.7 | | | | | | | 27.3 | 23.1 | 22.5 | 18.4 | 15.4 | 20.23 | |
| DEG.C (FWTEMP) | GUIDELINE | 32.2 | | | | | | | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.20 | 0 |
| TEMP RISE | ACTUAL | 10.5 | | | | | | | 8.7 | 8.1 | 9.0 | 9.2 | 9.4 | 9.15 | |
| DEG.C (FWTINC) | GUIDELINE | 11.1 | | | | | | | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.10 | 0 |
| HYDROGEN SULPHIDES | ACTUAL | 3.6 | | | | | | | 3.0 | 1.6 | 1.7 | 3.2 | 3.3 | 2.73 | |
| KG/DAY (SSIDUR) | GUIDELINE | 215 | | | | | | | 215 | 215 | 215 | 215 | 215 | 215.00 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 18, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Ontario Hydro
& PLANT LOCATION: Thunder Bay, TGS
Thunder Bay

INDUSTRIAL SECTOR: Electric Power Generation

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Coal fired Thermal Generating Station

EFFLUENT QUALITY: Hot water, temperature

EFFLUENT TREATMENT: Coagulant aid, sedimentation.

DISCHARGE TYPE: Continuous (once through condenser cooling water).

COMMENTS:

In compliance.

IMIS NUMBER: 0001841907 SIC CODE: 572 MOE REGION: Northwest DISTRICT: Thunder Bay

09/06/88

000184-19-0(7) ONTARIO HYDRO — THUNDER BAY TGS, THUNDER BAY — REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW MILLION M3 /DAY (FTFLOW) | ACTUAL | 1.117 | 1.01 | 1.25 | 1.075 | 1.4 | 1.14 | 1.24 | 1.17 | 1.25 | 1.077 | 0.765 | 1.14 | 1.136166 | |
| | GUIDELINE | | | | | | | | | | | | | | |
| TEMP RISE DEG.C (FWTINC) | ACTUAL | 7.5 | 5.3 | 6.7 | 9 | 9 | 10 | 10 | 10 | 9.25 | 9 | 9 | 9 | 8.645833 | |
| | GUIDELINE | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 0 |
| MAX TEMP DEG.C (FWTEMP) | ACTUAL | 7.5 | 5.3 | 6.7 | 18 | 20 | 23.75 | 27 | 28 | 22.75 | 20 | 13 | 9 | 16.75 | |
| | GUIDELINE | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Ontario Hydro - Lakeview TGS Toronto

INDUSTRIAL SECTOR: Electrical Power Generation

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Settling lagoon.

DISCHARGE TYPE: Continuous

COMMENTS:

In compliance.

IMIS NO.: 0001843101 SIC CODE: 527 MOE REGION: Central DISTRICT: Halton-Peel

09/19/88

000184-31-0(1) ONTARIO HYDRO — LAKEVIEW TGS, TORONTO — REPORT DATE: 06 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW MILLION M3 /DAY (FTFLOW) | ACTUAL | 83.7 | 85.1 | 85.1 | 64.1 | 65.7 | 103.7 | 45.4 | 70.7 | 99 | 67.4 | 82.7 | 119.4 | 81 | |
| | GUIDELINE | | | | | | | | | | | | | | |
| WATER TEMP DEG.C (FWTEMP) | ACTUAL | 5.5 | 6 | 6.4 | 6.8 | 10.7 | 14.5 | 15.3 | 19.2 | 20.9 | 12.2 | 10.3 | 7.9 | 11.31 | |
| | GUIDELINE | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 32.2 | 0 |
| TEMP RISE DEG.C (FWTINC) | ACTUAL | 3.8 | 4.9 | 3.8 | N/A | N/A | N/A | 3 | 2.6 | 4 | 4.6 | 3.3 | 3.6 | 2.8 | |
| | GUIDELINE | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 21, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Petro-Canada Products Ltd.
& PLANT LOCATION: Mississauga

INDUSTRIAL SECTOR: Petroleum Refinery

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Activated sludge.

DISCHARGE TYPE: Continuous

COMMENTS:

The values listed on the data sheet for Phenols and Solvent Extractables are sums taken from sampling point 0100 and 0200. All other parameter values are for sample point 0100 exclusively. Partially treated storm water is, on occasion, being discharged directly into Lake Ontario. A two phase program has been devised to enable Petro-Canada to contain and treat, through the water effluent treatment plant, all storm water up to and including the amount produced by a 5-year storm. Phase 1 of the program which involved installation of a new stormwater basin and effluent sewer line and junction box to divert stormwater effluent to the wastewater treatment was completed in Jan 1988. If stormwater continues to be discharged to the lake in 1988, Phase 2 of the program will be initiated.

IMIS NO.: 0000130104 SIC CODE: 365 MOE REGION: Central DISTRICT: Halton-Peel

08/26/88

000013-01-0(4) PETRO CANADA PRODUCTS LTD. CLARKSON REFINERY MISSISSAUGA REPORT DATE: 26 AUG 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 14352 | 14197.4 | 14401.9 | 12706.3 | 7037.34 | 16129.5 | 22839.4 | 23430.4 | 8992.16 | 8451.17 | 12669.9 | 12842.6 | 14004.17 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N FIL.REAC | ACTUAL | 26.2 | 65.3019 | 16.2 | 20.7 | 10.5 | 16.9 | 11.6 | 61.4 | 0.943 | 3.3 | 1.169 | 3.845 | 19.83824 | |
| KG /DAY (NNH3FR) | GUIDELINE | 143.52 | 141.974 | 123.835 | 102.514 | 70.3734 | 78.6473 | 100.832 | 106.741 | 89.9216 | 84.5117 | 70.1006 | 107.969 | 101.7449 | 0 |
| PH | ACTUAL | 7.5 | 7.656 | 7.5 | 7.7 | 7.3 | 7.7 | 7.8 | 7.7 | 7.9 | 7.7 | 7.8 | 7.632 | 7.657 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.053 | 0.09 | 0.136 | 0.207 | 0 | 0.189 | 0.903 | 0.833 | 0.042 | 0 | 0.701 | 0.237 | 0.282583 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.287 | 0.284 | 0.248 | 0.205 | 0.14 | 0.157 | 0.202 | 0.214 | 0.1798 | 0.169 | 0.14 | 0.216 | 0.204 | 6 |
| RESIDUE PARTIC. | ACTUAL | 121.2 | 216.429 | 157.7 | 77.4 | 310.3 | 82.5 | 117 | 78.5 | 95.3319 | 80.5 | 101.625 | 187.643 | 135.5107 | |
| KG /DAY (RSP ) | GUIDELINE | 215.28 | 212.961 | 185.752 | 153.771 | 105.56 | 117.971 | 151.248 | 160.112 | 134.882 | 126.767 | 105.151 | 161.954 | 152.6174 | 3 |
| SOLVENT EXTRACT. | ACTUAL | 51.2 | 75.3909 | 72.1 | 52.4019 | 23.3 | 63.7249 | 194.3 | 190.6 | 21.6719 | 18.8 | 46.1909 | 48.3609 | 71.50345 | |
| KG /DAY (SOLEXT) | GUIDELINE | 143.52 | 141.974 | 144.019 | 127.063 | 70.3734 | 161.295 | 228.394 | 234.304 | 89.9216 | 84.5117 | 126.7 | 128.426 | 140.0418 | 0 |
| SULPHIDE FIL.REAC | ACTUAL | 0.2 | 0.46 | | | | | | | | | | | 0.33 | |
| KG /DAY (SSIDFR) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 9 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 85% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Petro-Canada Products Ltd.
& PLANT LOCATION: Oakville

INDUSTRIAL SECTOR: Petroleum Refining

RECEIVING WATERBODY: DIRECT : Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Activated sludge.

DISCHARGE TYPE: Continuous

COMMENTS:

A major modification to the existing wastewater effluent treatment plant involving additional clarifiers, new dual media filters and aeration basins has been proposed. Company submitted an application for certificate of approval to the Ministry in June 1988. Modifications are scheduled to be completed in August 1989. The modifications should bring this source in compliance.

IMIS NO.: 0000530006 SIC CODE: 365 MOE REGION: Central DISTRICT: Halton-Peel

08/26/88

000053-00-0(6) PETRO-CANADA PRODUCTS INC. OAKVILLE REPORT DATE: 26 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 4927 | 4880.7 | 5350.74 | 4582.45 | 4577.91 | 5309.83 | 5237.09 | 4532.45 | 5064.34 | 4669 | 4432.43 | 10401.4 | 5330.445 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N FIL.REAC | ACTUAL | 54.57 | 35.41 | 11.44 | 10.3 | 26.9 | 27.9 | 21.8 | 13.1 | 12.4 | 8.7 | 17.6 | 53 | 24.42666 | |
| KG /DAY (NNH3FR) | GUIDELINE | 49.2341 | 48.825 | 53.5074 | 45.8245 | 45.7791 | 53.0983 | 52.3709 | 45.3245 | 50.6434 | 42.2786 | 44.3243 | 104.014 | 52.93534 | 1 |
| PH | ACTUAL | 7.2 | 7.3 | 7.3 | 7.25 | 7.2 | 7.2 | 7.2 | 7.2 | 7.3 | 7.5 | 7.3 | 7.3 | 7.270833 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.154 | 0.135 | 0.18 | 0.13 | 0.17 | 0.13 | 0.14 | 0.08 | 0.05 | 0.03 | 0.19 | 0.24 | 0.13575 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.09854 | 0.097614 | 0.107014 | 0.091649 | 0.091558 | 0.106196 | 0.104741 | 0.090649 | 0.101286 | 0.09338 | 0.088648 | 0.21 | 0.106773 | 9 |
| RESIDUE PARTIC. | ACTUAL | 92.31 | 113.11 | 101.88 | 86.7 | 159.6 | 150.7 | 158.9 | 137.2 | 80 | 52 | 89.4 | 206.4 | 119.0166 | |
| KG /DAY (RSP ) | GUIDELINE | 73.8512 | 73.2374 | 80.2611 | 68.7368 | 68.6686 | 79.6474 | 78.5564 | 67.9867 | 75.9651 | 63.4179 | 66.4865 | 155.7 | 79.37625 | 11 |
| SOLVENT EXTRACT. | ACTUAL | 9.08 | 9.44 | 11.67 | 17.7 | 10.9 | 11.5 | 13.5 | 10 | 6.9 | 4.1 | 10.6 | 20.4 | 11.31583 | |
| KG /DAY (SOLEXT) | GUIDELINE | 49.2341 | 48.825 | 53.5074 | 45.8245 | 45.7791 | 53.0983 | 52.3709 | 45.3245 | 50.6434 | 42.2786 | 44.3243 | 104.014 | 52.93534 | 0 |
| SULPHIDE FIL.REAC | ACTUAL | 2.86 | 3.41 | | | | | | | | | | | 3.135 | |
| KG /DAY (SSIDFR) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 21 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 65% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Petrosar Ltd.
& PLANT LOCATION: Corunna

INDUSTRIAL SECTOR: Petroleum Refining

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Primary function to provide feedstock for Dupont, Polysar and Union Carbide.

EFFLUENT QUALITY: Contains insoluble and soluble compounds from crude oil at parts per billion level.

EFFLUENT TREATMENT: Tertiary treatment diffused outfall.

DISCHARGE TYPE: continuous through a submerged diffuser

COMMENTS:

In compliance.

IMIS NUMBER: 0000480004 SIC CODE: 3651 MOE REGION: Southwest DISTRICT: Sarnia

06/10/88

000048-00-0(4) PETROSAR LTD SARNIA REPORT DATE: 14 JUN 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 5909.91 | 6228.14 | 6637.29 | 6637.29 | 7910.19 | 6637.29 | 6910.05 | 7046.43 | 5091.62 | 5318.92 | 5773.53 | 6000.83 | 6341.790 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 17 | 18 | 19 | 24 | 9 | 8 | 7 | 17 | 4 | 21 | 17 | 6 | 13.91666 | |
| KG /DAY (NNHTFR) | GUIDELINE | 59.0991 | 62.2814 | 66.3729 | 66.3729 | 79.1019 | 66.3729 | 69.1005 | 70.4643 | 50.9162 | 53.1892 | 57.7353 | 60.0083 | 63.41790 | 0 |
| PH | ACTUAL | 7.4 | 7.5 | 7.7 | 7.6 | 7.5 | 7.9 | 7.8 | 7.6 | 7.9 | 7.7 | 7.5 | 7.8 | 7.658333 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.03 | 0.05 | 0.03 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 | 0.03 | 0.03 | 0.031666 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.118198 | 0.124563 | 0.132746 | 0.132746 | 0.158204 | 0.132746 | 0.138201 | 0.140929 | 0.101832 | 0.106378 | 0.11547 | 0.120017 | 0.126835 | 0 |
| RESIDUE PARTIC. | ACTUAL | 19 | 5 | 4 | 1 | 28 | 40 | 58 | 20 | 55 | 10 | 6 | 11 | 21.41666 | |
| KG /DAY (RSP ) | GUIDELINE | 88.6487 | 93.4221 | 99.5593 | 99.5593 | 118.653 | 99.5593 | 103.651 | 105.696 | 76.3742 | 79.7838 | 86.6029 | 90.0125 | 95.12684 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 2 | 2 | 3 | 5 | 2 | 2 | 0 | 3 | 6 | 3 | 2 | 1 | 2.583333 | |
| KG /DAY (SOLEXT) | GUIDELINE | 59.0991 | 62.2814 | 66.3729 | 66.3729 | 79.1019 | 66.3729 | 69.1005 | 70.4643 | 50.9162 | 53.1892 | 57.7353 | 60.0083 | 63.41790 | 0 |
| CARBON TOTAL | ACTUAL | 47 | 33 | 13 | 19 | 21 | 42 | 24 | 24 | 56 | 28 | 20 | 29 | 29.66666 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Placer-Dome Inc. - Campbell Red Lake Mine (previously reported as Campbell Red Lake Mines)
Balmerton
Township Golden

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Balmer Creek - Chukuni River
INDIRECT: English River

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT QUALITY: May contain heavy metals, cyanide, arsenic

EFFLUENT TREATMENT: Lime precipitation of heavy metals and arsenic, primary tailings disposal area; secondary and tertiary polishing for cyanide removal; total retention of wastewaters when necessary for cyanide degradation to requirements.

DISCHARGE TYPE: Not continuous; effluent discharged dependent on contaminant levels, particularly cyanide.

COMMENTS:

The effluent discharge point is shared with the Dickenson-Sullivan Joint Venture, Arthur W. White Mine, thus the loadings and comments for the two are identical. Effluent Flow measurements began in June; flows previous to that are unknown. The discharge and heavy metal exceedance in June were approved by staff since tertiary pond water levels were reaching heights that may caused loss of dam stability and required lowering. Effluent discharges occurred on 169 days of the year (46%). Monthly averages are based on the mean of the daily data for those days in the month on which the discharges occurred.

Five trout bioassays conducted in 1987 indicated the final effluent is usually not acutely lethal to the test fish. Two samples collected during flow during flow events had 96 hour LC50s of greater than 100%. Two of three samples collected during no flow events had 96 hour LC50s of greater than 100%, while the third was 30.9%.

IMIS NO.: 0043440007 SIC CODE: MOE REGION: Northwest DISTRICT: Kenora

08/25/88

004344-00-0(7) PLACER-DOME LTD. KENORA REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | U | U | U | U | ND | 42045 | ND | 55880 | 12500 | 9770 | ND | ND | 10016.25 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ARSENIC UNF.TOT. | ACTUAL | 0.337 | 0.283 | 0.393 | 0.361 | | 0.51 | | 0.312 | 0.492 | 0.32 | | | 0.376 | |
| MG/L (ASUT ) | REQUIREMENT | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | | 0.5 | 0.5 | 0.5 | | | 0.5 | 1 |
| CYANIDE AVAIL. | ACTUAL | 0.24 | 0.43 | 0.14 | 1.06 | | 0.23 | | 0.13 | 0.08 | 0.12 | | | 0.30375 | |
| MG/L (CCNAUR) | REQUIREMENT | 2 | 2 | 2 | 2 | | 2 | | 2 | 2 | 2 | | | 2 | 0 |
| CUMULATIVE METALS | ACTUAL | 0.9 | 1.14 | 0.72 | 1.36 | | 1.55 | | 1.12 | 1.14 | 1.12 | | | 1.13125 | |
| MG/L (CUMMET) | GUIDELINE | 1 | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | | | 1 | 6 |

U= UNKNOWN
ND= NO DISCHARGE

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 7 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 71% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: & PLANT LOCATION: Placer - Dome Ltd. (previously reported as Dome Mines Ltd.) South Porcupine

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Swamp
INDIRECT: South Porcupine River

DESCRIPTION OF ACTIVITY: Gold is recovered using Merryl-Crowe process.

EFFLUENT QUALITY: Contains cyanide, copper, lead, nickel and zinc.

EFFLUENT TREATMENT: None

DISCHARGE TYPE: Continuous

COMMENTS:

A decant failure in April 1987 caused a release of contaminanted water to Porcupine Lake. High levels of Cyanide and copper were released and resulted in a fish kill. IEB investigated and no legal action was taken. The company is converting the carbon-in-pulp milling process instituting water recirculation within the mill and from the tailings dam and reducing mill feed in an attempt to improve effluent quality. Application for approval to increase dam height was submitted in April 1988. this will increase retention time and may result in an improvement in effluent quality. Effluent criteria have been placed on the C. of A. Exceedances in copper (1) and total cumulative metals occurred in 1987. An improvement in effluent quality is expected in 1989.

Two trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure were 10.0% and 17.9%.

IMIS NO.: 0001170000 SIC CODE: 052, 0591 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000117-00-0(0) PLACER DOME LIMITED — SOUTH PORCUPINE — REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALK TOTAL | ACTUAL | | | | | 66 | 63 | 65 | 67 | 67 | 59 | 62 | | 64.14 | |
| MG/L (ALKT) | GUIDELINE | | | | | | | | | | | | | | |
| CYANIDE FREE | ACTUAL | 0.45 | 0.6714 | 0.14 | | 0.2 | 0.05 | 0.045 | 0.048 | 0.05 | 0.1 | 0.39 | | 0.214 | |
| MG/L (CCNFUR) | GUIDELINE | 2 | 2 | 2 | | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | 2 | 0 |
| COPPER UNF.TOT. | ACTUAL | 0.85 | 0.95 | 0.66 | 1.6 | 0.73 | 0.55 | 0.61 | 0.478 | 0.5 | 0.65 | 0.94 | 1.3 | 0.818 | |
| MG/L (CUUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| IRON UNF.TOT. | ACTUAL | 0.74 | 0.29 | 0.25 | 0.76 | 0.35 | 0.2 | 0.26 | 0.26 | 0.2 | 0.3 | 0.26 | 0.21 | 0.34 | |
| MG/L (FEUT) | GUIDELINE | | | | | | | | | | | | | | |
| NICKEL UNF.TOT. | ACTUAL | 0.54 | 0.34 | 0.13 | 0.64 | 0.46 | 0.44 | 0.41 | 0.29 | 0.36 | 0.54 | 0.57 | | 0.429 | |
| MG/L (NIUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 0 |
| LEAD UNF.TOT. | ACTUAL | 0.05 | 0.014 | 0.014 | 0.05 | 0.011 | 0.017 | 0.01 | 0.02 | 0.025 | 0.04 | 0.01 | | 0.0237 | |
| MG/L (PBUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 0 |
| PH | ACTUAL | 7.45 | 7.3 | 7.2 | 7.4 | 7.9 | 8.2 | 7.9 | 8 | 7.7 | 7.6 | 8 | | 7.695 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | | | | | 8.8 | 11.7 | 11.7 | 8.1 | 10 | 6.7 | 7.6 | | 9.228 | |
| MG/L (RSP ) | GUIDELINE | | | | | 15 | 15 | 15 | 15 | 15 | 15 | 15 | | 15 | 0 |
| SULPHATE FIL.REAC | ACTUAL | | | | | 180 | 244 | 192 | 195 | 198 | 378 | 210.4 | | 228.2 | |
| MG/L (SSO4UR) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | 0.17 | 0.14 | 0.09 | 0.05 | 0.05 | 0.03 | 0.032 | 0.025 | 0.05 | 0.1 | 0.13 | | 0.0789 | |
| MG/L (ZNUT) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 73, FOR A TOTAL COMPLIANCE RECORD OF 97% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Polysar Ltd.
& PLANT LOCATION: Sarnia

INDUSTRIAL SECTOR: Organic Chemicals, Synthetic Fibres

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Feedstock from refineries in the Sarnia area are converted into several grades of synthetic rubber.

EFFLUENT QUALITY: Contains a variety of organics including chlorinated compounds

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through five outfalls

COMMENTS:

In compliance.

IMIS NUMBER: 0000030007 SIC CODE: 3712, 3731 MOE REGION: Southwest DISTRICT: Sarnia

06/16/88

000003-00-0(7) POLYSAR LIMITED SARNIA REPORT DATE: 06 SEP 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0200 0300 0400 0500 0600

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 229156.4 | 250909.0 | 242280.7 | 236049.5 | 255354.1 | 295761.0 | 360875.3 | 345156.0 | 348341.8 | 299845.6 | 321367.3 | 312888.4 | 291498.8 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 58.096 | 34 | 57.648 | 99.54 | 98.4 | 224.205 | 42.626 | 163.3 | 364.982 | 178.64 | 148.9 | 38.002 | 125.6949 | |
| KG /DAY (NNHTFR) | GUIDELINE | 2291.564 | 2509.08 | 2422.807 | 2360.495 | 2553.541 | 2957.610 | 3608.753 | 3451.560 | 3483.418 | 2998.456 | 3213.673 | 3128.884 | 2914.987 | 0 |
| PH | ACTUAL | 7.7 | 7.9 | 7.8 | 7.8 | 7.6 | 7.4 | 7.6 | 7.7 | 7.6 | 7.8 | 7.7 | 7.6 | 7.68 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.289 | 0.282 | 0.397 | 0.399 | 0.294 | 0.62 | 0.371 | 0.724 | 0.922 | 0.395 | 0.395 | 0.288 | 0.448 | |
| KG /DAY (PHNOL ) | GUIDELINE | 4.583129 | 5.018161 | 4.845615 | 4.720991 | 5.107083 | 5.915220 | 7.217507 | 6.903120 | 6.966837 | 5.996913 | 6.427346 | 6.257768 | 5.829974 | 0 |
| RESIDUE PARTIC. | ACTUAL | 616 | 1771 | 1783.014 | 575 | 480 | 4243 | 2698 | 1723 | 2576.015 | 1400 | 2475 | 1020 | 1780.002 | |
| KG /DAY (RSP ) | GUIDELINE | 3437.346 | 3763.62 | 3634.211 | 3540.743 | 3830.312 | 4436.415 | 5413.130 | 5177.340 | 5225.127 | 4497.684 | 4820.509 | 4693.326 | 4372.480 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 39 | 66 | 55 | 28 | 37 | 151 | 58 | 25 | 43 | 17 | 0 | 0 | 43.25 | |
| KG /DAY (SOLEXT) | GUIDELINE | 3437.346 | 3763.636 | 3634.211 | 3540.743 | 3830.312 | 4436.415 | 5413.130 | 5177.340 | 5225.127 | 4497.684 | 4820.509 | 4693.326 | 4372.482 | 0 |
| CARBON TOTAL | ACTUAL | 556.7 | 1433 | 1166 | 1420 | 849 | 3321 | 1109.9 | 1645.9 | 1216 | 1006 | 952 | 1133 | 1317.375 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: & PLANT LOCATION: Provincial Papers Ltd. - A Division of Abitibi-Price Inc. Thunder Bay

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Lake Superior (Thunder Bay)
INDIRECT:

DESCRIPTION OF ACTIVITY: Fine papers - coated and uncoated - are made from groundwood pulp using softwoods (black spruce, white spruce and balsam fir) and purchased pulp. Hydrogen peroxide is used to whiten pulp.

EFFLUENT QUALITY: Contains suspended solids (bark and wood fibre) and many organic compounds from the pulping processes.

EFFLUENT TREATMENT: Clays are partially recovered by an in-mill system. High solids streams are treated by a clarifier. All mill effluent passes into a settling lagoon.

DISCHARGE TYPE: continuous surface

COMMENTS:

A Control Order was issued on April 29, 1985. The company is required to meet specific BOD and TSS loadings in the total mill effluent discharged (BOD - 7.3 metric tonnes per day or alternately 22 kg/metric tonne of product and total suspended solids - 2.5 metric tonnes per day or 50 milligrams per litre).

This mill's effluent is not normally toxic to fish. Three trout bioassays conducted in 1987 indicated the final treated effleutn to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000860106 SIC CODE(S): 271 MOE REGION: Northwest DISTRICT: Thunder Bay

06/28/88

000086-01-0(6) ABITIBI-PRICE PROVINCIAL PAPER DIV. THUNDER BAY REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 45325 | 47408 | 48462 | 48443 | 50744 | 53413 | 54587 | 53106 | 49823 | 54920 | 52136 | 48145 | 50542.66 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 2810 | 3130 | 3150 | 3780 | 3700 | 3690 | 3930 | 3350 | 3430 | 3350 | 3600 | 2790 | 3392.5 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 7300 | 7300 | 7300 | 7300 | 7300 | 7300 | 7300 | 7300 | 7300 | 7300 | 7300 | 7300 | 7300 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 2.62 | 2.89 | 3.59 | 1.21 | 3.59 | 1.93 | 7.85 | 1.91 | 1.15 | 1.43 | 1.3 | 1.16 | 2.5525 | |
| KG /DAY (PPUT ) | GUIDELINE | 45.325 | 47.408 | 48.462 | 48.443 | 50.744 | 53.413 | 54.587 | 53.106 | 49.823 | 54.92 | 52.136 | 48.145 | 50.54266 | 0 |
| RESIDUE PARTIC. | ACTUAL | 1190 | 1090 | 680 | 870 | 1010 | 590 | 820 | 900 | 580 | 990 | 870 | 1160 | 895.8333 | |
| KG /DAY (RSP ) | GUIDELINE | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Quebec and Ontario Paper Company Ltd.
& PLANT LOCATION: (formerly reported as: The Ontario Paper Company Ltd.)
Allanburg
Thorold

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Twelve Mile Creek
INDIRECT: 12.4 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Newsprint is made from debarked logs by three pulping processes (sulphite, thermal-mechanical and chemi-mechanical) and from deinked newspaper pulp.

EFFLUENT QUALITY: Residual organics may foam slightly at each drop in Old Welland Canal.

EFFLUENT TREATMENT: Spent sulphite liquor is treated to produce saltcake, vanillin and alcohol. An oxygen high-rate system treats deinking effluent and condensates from sulphite pulping. A clarifier removes solids from high-solids wastewaters (note-cooling waters were separated from process wastewaters).

DISCHARGE TYPE: continuous into a buried part of the Old Welland Canal

COMMENTS:

Attempts to sell Chemical Recovery Plant failed; company has shutdown process therefore New Control Order appeal concerning Chemical Recovery Plant is redundant. Solids loading exceedance attributable to mechanical equipment breakdown.

The mill's discharge is normally not toxic to fish. Three trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000930008 SIC CODE: 271 MOE REGION: West Central DISTRICT: Welland

09/15/88

000093-00-0(8) QUEBEC AND ONTARIO PAPER COMPANY LTD THOROLD REPORT DATE: 13 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 118100 | 107516 | 97120 | 103300 | 108756 | 115942 | 117414 | 119229 | 110659 | 107778 | 104388 | 99461 | 109138.5 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 6500 | 5600 | 4900 | 4900 | 4800 | 3500 | 3100 | 3600 | 5400 | 4900 | 2100 | 1600 | 4241.666 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 18140 | 18140 | 18140 | 18140 | 18140 | 18140 | 18140 | 18140 | 18140 | 18140 | 18140 | 18140 | 18140 | 0 |

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDUE FILTERED | ACTUAL | 37700 | 33600 | 32700 | | | | | | | | | | 34666.66 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 4200 | 3300 | 3300 | 3100 | 3500 | 6800 | 5100 | 6100 | 7000 | 3200 | 6200 | 5200 | 4750 | |
| KG /DAY (RSP ) | GUIDELINE | 6800 | 6800 | 6800 | 6800 | 6800 | 6800 | 6800 | 6800 | 6800 | 6800 | 6800 | 6800 | 6800 | 1 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Reichhold Ltd.
& PLANT LOCATION: Thunder Bay

INDUSTRIAL SECTOR: Organic chemicals, Synthetic fibres

RECEIVING WATERBODY: DIRECT: Kaministiquia River
INDIRECT: 7 km to Lake Superior (Thunder Bay)

DESCRIPTION OF ACTIVITY: Formaldehyde (produced from methanol) is used to make phenol-formaldehyde and urea formaldehyde resins.

EFFLUENT QUALITY: Contains low levels of phenolic compounds

EFFLUENT TREATMENT: Secondary activated sludge.

DISCHARGE TYPE: continuous surface

COMMENTS:

One phenol exceedance due to upset of treatment plant. Suspended solids not in compliance with guideline. *Phenolic requirement 1 mg/l in Certificate of Approval; Suspended Solids guideline 15 mg/l. An additional clarifier was added in 1985 and effluent recirculation is used to reduce Suspended Solids in the discharge.

Company commenced discharging to municipal sewer system in the last week of December 1987.
The discharge is normally toxic to fish. Four trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 6.4% to 42.8%.

IMIS NUMBER: 0001830009 SIC CODE(S): 3783 MOE REGION: Northwest DISTRICT: Thunder Bay

08/25/88

000183-00-0(9) REICHHOLD LIMITED THUNDERBAY REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/CONCENTRATION | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 322 | 323 | 362 | 254 | 267 | 298 | 355 | 336 | 315 | 252 | 284 | 270 | 303.1666 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.02 | 0.37 | 0.03 | 0.02 | 0.02 | 4.3 | 0.92 | 0.484 | |
| MG /L (PHNOL) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| PH | ACTUAL | 7.96 | 8.14 | 8 | 7.92 | 8.3 | 8.23 | 8.39 | 8.19 | 8.19 | 8.24 | 8.1 | 8.24 | 8.16 | |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | 0 |
| PO4 UNF.TOT. | ACTUAL | 0.1 | 1.6 | 0.1 | 0.045 | 0.02 | 0.068 | 0.339 | 0.315 | 0.16 | 0.221 | 0.311 | 0.436 | 0.3095 | |
| MG /L (PPO4UT) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 172 | 197 | 220 | 263 | 362 | 355 | 346 | 249 | 297 | 366 | 384 | 264 | 289.58 | |
| MG /L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 15 | 12 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 13 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 64% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Rexwood Products Ltd.
& PLANT LOCATION: New Liskeard

INDUSTRIAL SECTOR:

RECEIVING WATERBODY: DIRECT: Lake Timiskaming
INDIRECT:

DESCRIPTION OF ACTIVITY: Manufactures particle board.

EFFLUENT QUALITY: Leachate from woodwaste landfill site contains BOD, suspended solids and phenols.

EFFLUENT TREATMENT: Nil - leachate generation minimized by capping orininal fill area.

DISCHARGE TYPE: continuous

COMMENTS:

Study of receiving water in 1986 showed no significant impact of leachate on Lake Timiskaming. Company is expected to discontinue landfilling woodwaste. The company has submitted application for a Certifcate of Approval (Air) covering the installation of a new wood waste boiler. Leachate quality is regulated by Objectives for the Control of Industrial Waste Discharges in Ontario.

IMIS NUMBER: 008501007 SIC CODE(S): 2593 MOE REGION: Northeast DISTRICT: North Bay

09/06/88

008501-00-0(7) REXWOOD PRODUCTS LIMITED NEW LISKEARD REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 37.2 | 25.3 | 307 | 462 | 83.9 | 42.1 | 24.25 | 18.16 | 13.7 | 17.3 | 17.7 | 44.4 | 91.08416 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | | | | 5.68 | 1.33 | 0.371 | 0.674 | 0.379 | 0.223 | 0.17 | 0.248 | 0.124 | 1.022111 | |
| KG /DAY (BOD5 ) | GUIDELINE | | | | 6.93 | 1.2585 | 0.6315 | 0.36375 | 0.2724 | 0.2055 | 0.2595 | 0.2655 | 0.666 | 1.20585 | 4 |
| PHENOLS UNF-REAC | ACTUAL | 0.0004 | | 0.003 | 0.005 | 0.0008 | | | | | | | | 0.0023 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.000744 | | 0.00614 | 0.00924 | 0.001678 | | | | | | | | 0.004450 | 0 |
| RESIDUE PARTIC. | ACTUAL | 0.357 | 0.809 | 0.123 | 0.046 | 0.084 | 0.69 | 0.679 | 0.781 | 0.452 | 0.612 | 0.554 | 0.302 | 0.457416 | |
| KG /DAY (RSP ) | GUIDELINE | 0.558 | 0.3795 | 4.605 | 6.93 | 1.2585 | 0.6315 | 0.36375 | 0.2724 | 0.2055 | 0.2595 | 0.2655 | 0.666 | 1.366262 | 7 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 TIMES OUT OF 25, FOR A TOTAL COMPLIANCE RECORD OF 56% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Rio Algom Ltd. (Panel Mill), Elliot Lake

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Quirke Lake to Serpent River
INDIRECT: 65 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined, milled and separated into tailings and concentrates.

EFFLUENT QUALITY: Contains metal salts, ammonia compounds, and radioactive materials

EFFLUENT TREATMENT: Addition of barium chloride and lime to precipitate radium, and adjust pH and precipitate metals followed by removal in settling pond.

DISCHARGE TYPE: Continuous

COMMENTS:

Radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

IMIS NUMBER: 0001670207 SIC CODE: 057 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

02/88

000167-02-0(7) RIO ALGOM LIMITED — ELLIOT LAKE — REPORT DATE: 22 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 8337 | 8588 | 8821 | 10143 | 9685 | 8208 | 7275 | 7085 | 7957 | 6834 | 9979 | 11016 | 8392 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.08 | 0.11 | 0.06 | 0.17 | 0.10 | 0.06 | 0.07 | 0.10 | | | 0.14 | 0.12 | 0.09 | 0 |
| KG/DAY (CUUT) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | | S/C | S/C | S/C | |
| IRON UNF.TOT. | ACTUAL | 0.75 | 0.94 | 0.35 | 0.40 | 0.68 | 0.25 | 0.29 | 0.50 | | 0.27 | 1.30 | 1.54 | 0.56 | 0 |
| NICKEL UNF.TOT. | ACTUAL | 0.14 | 0.26 | 0.22 | 0.37 | 0.36 | 0.25 | 0.28 | 0.33 | | 0.08 | | 0.42 | 0.25 | 0 |
| KG/DAY (NIUT) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | S/C | | S/C | S/C | |
| LEAD UNF.TOT. | ACTUAL | 0.16 | 0.41 | 0.11 | 0.27 | 0.40 | 0.17 | 0.31 | 0.30 | | 0.37 | | 0.30 | 0.27 | 0 |
| KG/DAY (PBUT) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | S/C | | S/C | S/C | |
| PH | ACTUAL | 8.60 | 8.57 | 7.76 | 7.50 | 8.31 | 8.04 | 7.99 | 8.24 | 7.82 | 8.44 | | 8.40 | 8.15 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RADIUM 226 FIL. | ACTUAL | 254.0 | 253.0 | 130.0 | 111.0 | 193.0 | 143.0 | 176.0 | 154.0 | 139.0 | 154.0 | | 102.0 | 164.5 | |
| MBQ/L (RA) | GUIDELINE | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | | 740.0 | 740.0 | 0 |
| RADIUM 226 | ACTUAL | 560.0 | 748.0 | 548.0 | 388.0 | 300.0 | 218.0 | 301.0 | 267.0 | 234.0 | 286.0 | | 395.0 | 385.9 | |
| MBQ/L (RA226F) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 8.34 | 8.59 | 8.82 | 10.14 | 9.69 | 16.42 | 7.28 | 14.17 | 39.79 | 6.83 | | 11.02 | 12.70 | |
| KG/DAY (RSP) | GUIDELINE | 125.06 | 128.82 | 132.32 | 152.15 | 145.28 | 123.12 | 109.13 | 106.28 | 119.36 | 102.51 | | 165.24 | 128.11 | 0 |
| ZINC UNF.TOT. | ACTUAL | 0.12 | 0.09 | 0.12 | 0.54 | 0.14 | 0.05 | 0.29 | 0.32 | | 0.08 | | 0.13 | 0.18 | 0 |
| KG/DAY (ZNUT) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | S/C | | S/C | S/C | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Rio Algom Ltd. (Quirke Mill)
& PLANT LOCATION: Elliot Lake

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Serpent River
INDIRECT: 67 km to Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore is mined, milled and separated into tailings and concentrates. Ammonia - based compounds are used in the recovery of uranium.

EFFLUENT QUALITY: Contains dissolved metal salts, ammonia compounds, and radioactive materials.

EFFLUENT TREATMENT: Mill tailings are treated with lime to effect pH control and precipitate metals. Tailings effluent is treated with barium chloride to precipitate Radium 226 and lime addition to adjust pH before final discharge to river.

DISCHARGE TYPE: Continuous

COMMENTS:

Radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board. Abatement of total suspended solids and iron to be undertaken in consultation with AECB.

IMIS NUMBER: 0001670108 SIC CODE: 057 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

10/07/88

000167-01-0(8) RIO ALGOM LIMITED — ELLIOT LAKE — REPORT DATE: 22 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 14342 | 16502 | 16226 | 14299 | 12597 | 12381 | 11094 | 14792 | 11189 | 17400 | 19137 | 19345 | 14942 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.47 | 0.74 | 0.42 | 0.36 | 0.02 | 0.15 | 0.27 | 0.38 | 0.15 | 0.19 | 0.42 | 0.31 | 0.36 | 0 |
| KG/DAY (CUUT) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | |
| IRON UNF.TOT. | ACTUAL | | 57.76 | 63.61 | 24.74 | 99.77 | 39.00 | 30.29 | 121.89 | 30.10 | 38.28 | 84.97 | 46.04 | 62.80 | |
| KG/DAY (FEUT) | GUIDELINE | | 16.50 | 16.23 | 14.30 | 12.60 | 12.38 | 11.09 | 14.79 | 11.19 | 17.40 | 19.14 | 19.35 | 15.00 | 11 |
| NICKEL UNF.TOT. | ACTUAL | 0.79 | 0.96 | 0.83 | 0.60 | 0.42 | 0.40 | 0.49 | 1.07 | 0.25 | 0.50 | 0.92 | 1.01 | 0.72 | 0 |
| KG/DAY (NIUT) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | |
| LEAD UNF.TOT. | ACTUAL | 0.40 | 0.38 | 0.42 | 0.66 | 0.20 | 0.45 | 0.49 | 0.74 | 0.23 | 0.78 | 0.69 | 0.62 | 0.54 | 0 |
| KG/DAY (PBUT) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | |
| PH | ACTUAL | 7.65 | 7.48 | 7.92 | 7.98 | 7.16 | 7.66 | 7.72 | 8.17 | 8.29 | 8.55 | 7.43 | 8.27 | 7.86 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RADIUM 226 FIL. | ACTUAL | 224.0 | 113.0 | 41.0 | 44.0 | 47.0 | 52.0 | 86.0 | 166.0 | 110.0 | 107.0 | 126.0 | 137.0 | 104.4 | |
| MBQ/L (RA226F) | GUIDELINE | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 740.0 | 0 |
| RADIUM 226 | ACTUAL | 4087.47 | 2491.80 | 924.88 | 757.85 | 1058.15 | 978.10 | 1331.28 | 3076.74 | 1991.64 | 3671.40 | 3444.66 | 3752.93 | 2417.00 | |
| MBQ/L (RA226F) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 143.42 | 198.02 | 210.94 | 128.69 | 113.37 | 123.81 | 110.94 | 207.09 | 223.78 | 261.00 | 248.78 | 212.80 | 196.00 | |
| KG/DAY (RSP) | GUIDELINE | 215.13 | 247.53 | 243.39 | 214.49 | 188.96 | 185.72 | 166.41 | 221.88 | 167.84 | 261.00 | 287.06 | 290.18 | 224.13 | 1 |
| ZINC UNF.TOT. | ACTUAL | 0.47 | 0.83 | 0.50 | 0.19 | 0.23 | 0.14 | | 0.41 | 0.35 | 0.54 | 0.50 | 0.23 | 0.40 | 0 |
| KG/DAY (ZNUT) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | | S/C | S/C | S/C | S/C | S/C | S/C | |

NOTE: PH LIMIT 5.5-10.6. 0* INDICATES INTAKE EXCEEDED DISCHARGE. S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 TIMES OUT OF 94, FOR A TOTAL COMPLIANCE RECORD OF 87% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Rio Algom Ltd. (Stanleigh Mill) Elliot Lake

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Serpent River (McCabe Lake)
INDIRECT: Lake Huron (North Channel)

DESCRIPTION OF ACTIVITY: Ore mined, milled and separated into tailings and concentrates.

EFFLUENT QUALITY: Contains dissolved metal salts and radioactive material.

EFFLUENT TREATMENT: Effluent system consists of settling basin, sequential addition of barium chloride and lime, filtration plant to remove solids.

DISCHARGE TYPE: Continuous

COMMENTS:

The radioactivity and chemical parameter limits are set by Canada's Atomic Energy Control Board.

IMIS NUMBER: 0001670306 SIC CODE: 057 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

02/88

000167-03-0(6) RIO ALGOM LIMITED — ELLIOT LAKE — REPORT DATE: 22 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 19638.7 | 12666.2 | 15707.5 | 20200.3 | 31777.9 | 30706.5 | 31034.8 | 27639.3 | 31855.6 | 17279.8 | 23267.5 | 28321.9 | 24174.66 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.16 | 0.10 | 0.13 | 0.24 | | 0.37 | | 0.33 | 0.35 | | | 0.37 | 0.25 | 0 |
| KG/DAY (CUUT) | GUIDELINE | S/C | S/C | S/C | S/C | | S/C | | S/C | S/C | | | S/C | S/C | |
| IRON UNF.TOT. | ACTUAL | 0.20 | 0.32 | 0.11 | 0.36 | | 0.61 | | 0.64 | 0.73 | 0.48 | | 0.76 | 0.49 | 0 |
| KG/DAY (FEUT) | GUIDELINE | S/C | S/C | S/C | S/C | | S/C | | S/C | S/C | S/C | | S/C | S/C | |
| LEAD UNF.TOT. | ACTUAL | 0.29 | 0.27 | 0.13 | | | 0.55 | | 0.97 | 0.48 | 1.05 | | 0.91 | 0.62 | 0 |
| KG/DAY (PBUT) | GUIDELINE | S/C | S/C | S/C | | | S/C | | S/C | S/C | S/C | | S/C | S/C | |
| PH | ACTUAL | 7.59 | 7.12 | 6.57 | 6.48 | 6.8 | 7.53 | 6.1 | 6.96 | 6.88 | 7.05 | 6.9 | 7.18 | 6.93 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RADIUM 226 FIL. | ACTUAL | 40 | 46 | | 39 | 49 | 42 | 46 | 79 | 54 | 40 | 39 | | 47.4 | |
| MBQ/L (RA) | GUIDELINE | 740 | 740 | | 740 | 740 | 740 | 740 | 740 | 740 | 740 | 740 | | 740 | 0 |
| RADIUM 226 | ACTUAL | 76 | 81 | 41 | 63 | 61 | 137 | 76 | 104 | 227 | 112 | 48 | 45 | 89.25 | |
| MBQ/L (RA226F) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | | 25.33 | 31.42 | 40.40 | 31.78 | 61.41 | 31.03 | 27.64 | 31.86 | 17.28 | 23.27 | 28.32 | 31.79 | |
| KG/DAY (RSP) | GUIDELINE | | 189.99 | 235.61 | 303.00 | 476.67 | 460.60 | 465.52 | 414.59 | 477.83 | 259.20 | 349.01 | 424.83 | 368.81 | 0 |
| ZINC UNF.TOT. | ACTUAL | 0.39 | 0.29 | 0.74 | 1.13 | | 0.71 | | 0.97 | 0.73 | 0.38 | | 1.25 | 0.79 | 0 |
| KG/DAY (ZNUT) | GUIDELINE | S/C | S/C | S/C | S/C | | S/C | | S/C | S/C | S/C | | S/C | S/C | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 67, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Rothsay, The Rendering Division of Maple Leaf Mills Ltd. Rothsay

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Moorefield Creek to Conestogo River to Grand River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: rendering

EFFLUENT QUALITY: Contains phosphorus, hydrogen sulphide and dissolved organics.

EFFLUENT TREATMENT: Grease skimming, screening, flow equalization, flocculation, dissolved air flotation, aeration, sedimentation, and treated effluent polishing in holding lagoons by aeration and lime treatment for ammonia and phosphorus reduction.

DISCHARGE TYPE: seasonal; discharge permitted only in November - February period.

COMMENTS:

Generally in compliance. Seasonal average has slight $H_2S$ exceedances; also has three monthly average $H_2S$ exceedances. Risk of $H_2S$ toxicity was low because discharge dissolved oxygen was never below 5 mg/L company has submitted application for approval to upgrade its treatment plant aeration. Company to conduct audit of wastewater treatment facilities during 1988.
Effluent requirements are those of Certificate of Approval #4-079-84-866 dated May 1986. In previous years the company used to dispose of all treated effluent by spray irrigation on its own land. The present C of A, allowing seasonal discharge to Moorefield Creek requires that the existing spray irrigation system be maintained as a backup for drought flow years and restricts its use to 91,000 cubic metres (20,000,000 gallons) per year. The C of A permits a controlled treated wastewater discharge with varying limits of flowrate and contaminant concentration depending on month of discharge and receiving stream flowrate and ammonium nitrogen concentrations.

IMIS NO.: SIC CODE: MOE REGION: West Central DISTRICT: Cambridge

08/26/88

ROTHSAY, THE RENDERING DIV OF MAPLE LEAF MILLS LTD

REPORT DATE: 14 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | NOV 2 | NOV 10 | NOV 19 | DEC 10 | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | | | | | | | | | 4493 | 6048 | 2074 | 5875 | 4622.5 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | 9504 | 7344 | 3542 | 14688 | 8769.5 | 0 |
| BOD 5 DAY | ACTUAL | | | | | | | | | 9 | 18.7 | 16.6 | 70.6 | 28.725 | |
| KG /DAY (BOD5) | REQUIREMENT | | | | | | | | | 142.5 | 110.2 | 53.1 | 220.3 | 131.525 | 0 |
| TOD | ACTUAL | | | | | | | | | 139 | 300 | 165 | 465 | 267.25 | |
| KG /DAY (TOD) | REQUIREMENT | | | | | | | | | 1250 | 5500 | 1800 | 5980 | 3632.5 | 0 |
| NH3-N TOTAL | ACTUAL | | | | | | | | | 9 | 33.3 | 17.8 | 37.1 | 24.3 | |
| KG /DAY (NNHTFR) | REQUIREMENT | | | | | | | | | 18.5 | 37.1 | 31 | 90 | 44.15 | 0 |
| PH | ACTUAL | | | | | | | | | 6.7 | 7.4 | 8.1 | 7.6 | 7.45 | 1 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| PHOSPHOR UNF TOTAL | ACTUAL | | | | | | | | | 0.22 | 0.36 | 0.54 | 0.65 | 0.4425 | |
| KG /DAY (PPUT ) | REQUIREMENT | | | | | | | | | 9.5 | 7.34 | 3.54 | 14.69 | 8.7675 | 0 |
| RESIDUE PARTIC. | ACTUAL | | | | | | | | | 31.5 | 48.4 | 62.2 | 111.6 | 63.425 | |
| KG /DAY (RSP ) | REQUIREMENT | | | | | | | | | 142.5 | 110.2 | 53.1 | 220.3 | 131.525 | 1 |
| HYD. SULFIDE | ACTUAL | | | | | | | | | 0.38 | 0.48 | 0.17 | 0.47 | 0.375 | |
| KG /DAY (SSIDA) | REQUIREMENT | | | | | | | | | 0.2 | 0.4 | 0.15 | 0.41 | 0.29 | 4 |

NOTE: PH LIMIT 7.0-8.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 6 TIMES OUT OF 32, FOR A TOTAL COMPLIANCE RECORD OF 81% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Shell Canada Ltd. Corunna

INDUSTRIAL SECTOR: Petroleum Refining

RECEIVING WATERBODY: DIRECT: Talford Creek
INDIRECT: St. Clair River

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products

EFFLUENT QUALITY: Contains insoluble and dissolved compounds from crude oil at parts per billion level.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through two outfalls

COMMENTS:

In compliance.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000510107 SIC CODE: 3651, 373 MOE REGION: Southwest DISTRICT: Sarnia

07/05/88

000051-01-0(7) SHELL CANADA LTD SARNIA MANUFACTURING CENTRE CORUNNA REPORT DATE: 31 AUG 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0200 0300

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 206794 | 222863 | 218221 | 217353 | 258336 | 289840 | 280857 | 288644 | 286477 | 257583 | 276342 | 208760 | 251005.8 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 0 | 8.3 | 0 | 31.6 | 0 | 11.89 | 0 | 6.69 | 0 | 5.5 | 14.2 | 12.5 | 7.556666 | |
| KG /DAY (NNHTFR) | GUIDELINE | 2067.94 | 2228.63 | 2182.2 | 2173.52 | 2583.36 | 2898.4 | 2808.56 | 2886.44 | 2864.76 | 2575.83 | 2763.42 | 2087.59 | 2510.054 | 0 |
| PH | ACTUAL | 7.85 | 7.4 | 7.8 | 7.845 | 8.1 | 7.52 | 7.82 | 7.915 | 7.655 | 7.615 | 7.605 | 7.47 | 7.71625 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0 | 0 | 0 | 0.04 | 0.18 | 0.01 | 0.18 | 0.37 | 0 | 0.17 | 0.16 | 0.2 | 0.109166 | |
| KG /DAY (PHNOL ) | GUIDELINE | 4.13588 | 4.45725 | 4.36441 | 4.34705 | 5.16672 | 5.79679 | 5.61712 | 5.77287 | 5.72952 | 5.15165 | 5.52683 | 4.17518 | 5.020105 | 0 |
| RESIDUE FILTERED | ACTUAL | 985.8 | 1679.79 | 2945.5 | 592.7 | 1467 | 7536 | 5796 | 4363.89 | 4327.89 | 7299.09 | 5137.49 | 12361.5 | 4541.054 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 310.9 | 0 | 987.7 | 0 | 0 | 665 | 713 | 1557.29 | 632.1 | 352.9 | 738.8 | 794.7 | 562.6991 | |
| KG /DAY (RSP ) | GUIDELINE | 3101.91 | 3342.94 | 3273.31 | 3260.29 | 3875.04 | 4347.6 | 4212.84 | 4329.66 | 4297.14 | 3863.74 | 4145.13 | 3131.39 | 3765.082 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 213.2 | 40.5 | 196 | 52.7 | 148.1 | 130.9 | 104 | 248.2 | 85.3 | 48.8 | 91.2 | 284.8 | 136.975 | |
| KG /DAY (SOLEXT) | GUIDELINE | 2067.94 | 2228.63 | 2182.2 | 2173.52 | 2583.36 | 2898.4 | 2808.56 | 2886.44 | 2864.76 | 2575.83 | 2763.42 | 2087.59 | 2510.054 | 0 |
| SULPHIDE UNF.REAC | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 4.08 | 17.8 | 8.7 | 0 | 0 | 0 | 2.548333 | |
| KG /DAY (SSIDUR) | GUIDELINE | | | | | | | | | | | | | | |
| CARBON TOTAL | ACTUAL | 0 | 1156.89 | 165.7 | 3009 | 603.9 | 118 | 0 | 272.1 | 288.7 | 456.1 | 358.3 | 2187.39 | 718.0066 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Sherman Mine
& PLANT LOCATION: Temagami

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Lake Temagami
INDIRECT: Sturgeon R. to Lake Nipissing

DESCRIPTION OF ACTIVITY: Open pit mining. Concentrating iron ore to pellets.

EFFLUENT QUALITY: Contains suspended solids (iron) and dissolved inorganic salts.

EFFLUENT TREATMENT: Tailings impoundment.

DISCHARGE TYPE: Continuous from April to December. None from January to March due to freeze up.

COMMENTS:

Limits based on Guidelines for Environmental Control in the Ontario Mineral Industry. No effluent discharges during winter months due to freeze-up. No discharges in July, August and October due to shut downs.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001540004 SIC CODE: 058 MOE REGION: Northeast DISTRICT: North Bay

09/06/88

000154-00-0(4) SHERMAN MINE TEMAGAMI REPORT DATE: 31 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | S/C | S/C | S/C | S/C | 7862 | 982.8 | S/C | S/C | 196.6 | S/C | S/C | S/C | 3013.8 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ALUMINUM UNF.TOT. | ACTUAL | | | | | 0.786 | 0.098 | | | 0.013 | | | | 0.299 | |
| KG /DAY (ALUT ) | GUIDELINE | | | | | 7.862 | 0.9828 | | | 0.1966 | | | | 3.0138 | 0 |
| COPPER UNF.TOT. | ACTUAL | | | | | 0.157 | 0.00983 | | | 0.002 | | | | 0.056276 | |
| KG /DAY (CUUT ) | GUIDELINE | | | | | 7.862 | 0.9828 | | | 0.1966 | | | | 3.0138 | 0 |
| IRON UNF.TOT. | ACTUAL | | | | | 0.078 | 0.0983 | | | 0.002 | | | | 0.059433 | |
| KG /DAY (FEUT ) | GUIDELINE | | | | | 7.862 | 0.9828 | | | 0.1966 | | | | 3.0138 | 0 |
| NICKEL UNF.TOT. | ACTUAL | | | | | 0.786 | 0.0197 | | | 0.004 | | | | 0.2699 | |
| KG /DAY (NIUT ) | GUIDELINE | | | | | 7.862 | 0.9828 | | | 0.1966 | | | | 3.0138 | 0 |
| LEAD UNF.TOT. | ACTUAL | | | | | 0.393 | 0.00983 | | | 0.006 | | | | 0.136276 | |
| KG /DAY (PBUT ) | GUIDELINE | | | | | 7.862 | 0.9828 | | | 0.1966 | | | | 3.0138 | 0 |
| PH | ACTUAL | | | | | 7.4 | 8.11 | | | 7.9 | | | | 7.803333 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | | | | | 7390 | | | | | | | | 7390 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | | | | | 7.86 | 2.46 | | | 1.18 | | | | 3.833333 | |
| KG /DAY (RSP ) | GUIDELINE | | | | | 117.93 | 14.742 | | | 2.949 | | | | 45.207 | 0 |
| SULPHATE UNF.REAC | ACTUAL | | | | | 3600 | | | | | | | | 3600 | |
| KG /DAY (SSO4UR) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | | | | | 0.0786 | 0.0098 | | | 0.002 | | | | 0.030133 | |
| KG /DAY (ZNUT ) | GUIDELINE | | | | | 7.862 | 0.9828 | | | 0.1966 | | | | 3.0138 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Sohio
& PLANT LOCATION: (formerly Canadian Carborundum)
Niagara Falls

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT QUALITY: There are two discharges, both to Welland River; results are composites of all discharges.

EFFLUENT TREATMENT: Process wastewater treatment consists of oil-water separation.

DISCHARGE TYPE: continuous through an outfall

COMMENTS:

Wastewater is furnace cooling water only.

One trout bioassay conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0001660000 SIC CODE: 357 MOE REGION: West Central DISTRICT: Welland

07/05/88

000166-00-0(0) SOHIO NIAGARA FALLS REPORT DATE: 13 SEP 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/004/5130 TWELVE MILE CR.
INCLUDES CONTROL POINTS: 0100 0200
DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 9396 | 9396 | 9396 | 9396 | 12311 | 9396 | 12311 | 12311 | 12311 | 12311 | 12311 | 12311 | 11096.41 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 169.1 | 18.79 | 18.79 | 9.4 | 79.6 | 37.6 | 440.4 | 262.4 | 81.7 | 49.3 | 110.8 | 457.9 | 144.6483 | |
| KG /DAY (BOD5 ) | GUIDELINE | 140.94 | 140.94 | 140.94 | 140.94 | 43.74 | 140.94 | 184.67 | 184.67 | 184.67 | 184.67 | 184.67 | 184.67 | 154.705 | 4 |
| PH | ACTUAL | 8.18 | 8.1 | 8.23 | 8.1 | 7.995 | 7.59 | 8.13 | 6.78 | 8.25 | 8.185 | 8.3 | 8.16 | 8 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 0.19 | 0.19 | 0.19 | 0.47 | 0.98 | 0.28 | 1.599 | 0.3 | 1.45 | 2.1 | 2.89 | 0.578 | 0.93475 | |
| KG /DAY (PPUT ) | GUIDELINE | 9.396 | 9.396 | 9.396 | 9.396 | 12.311 | 9.396 | 12.311 | 12.311 | 12.311 | 12.311 | 12.311 | 12.311 | 11.09641 | 0 |

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/5130 TWELVE MILE CR.
INCLUDES CONTROL POINTS: 0300 0400
DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDUE PARTIC. | ACTUAL | 105.2 | 32.9 | 0 | 70.5 | 0 | 0 | 160.12 | 1828 | 97.9 | 6.42 | 342.069 | 0 | 220.2590 | |
| KG /DAY (RSP ) | GUIDELINE | 140.94 | 140.94 | 140.94 | 140.94 | 291.6 | 140.94 | 437.4 | 437.4 | 437.4 | 437.4 | 437.4 | 437.4 | 301.725 | 1 |
| SOLVENT EXTRACT. | ACTUAL | 14.1 | 2.82 | 6.58 | 75.2 | 1.17 | 0 | 0 | 79.3 | 0 | 0 | 0 | 0 | 14.93083 | |
| KG /DAY (SOLEXT) | GUIDELINE | 140.94 | 140.94 | 140.94 | 140.94 | 291.6 | 140.94 | 437.4 | 437.4 | 437.4 | 437.4 | 437.4 | 437.4 | 301.725 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Spruce Falls Power and Paper Co. Ltd.
& PLANT LOCATION: Kapuskasing

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Kapuskasing R.
INDIRECT:

DESCRIPTION OF ACTIVITY: Converts softwood (Black spruce, Balsam fir, Jack pine) logs and chips into newsprint by 3 different processes - stone groundwood, TMP and Magnefite (Magnefite has spent sulphite liquor recovery). Hydrosulphite is used to brighten the newspaper.

EFFLUENT QUALITY: Contains suspended solids (bark, wood and paper) and many dissolved organics

EFFLUENT TREATMENT: Two clarifiers - one for the woodroom and one for total mill effluent (enclosed) are used to remove solids.

DISCHARGE TYPE: Continuous outfall.

COMMENTS:

The present Control Order requirements for suspended solids are 10 Bd tonnes averaged over 30 consecutive days and 20 Bd tonnes on any given day. The limits for BOD5 vary with the flows and temperature (i.e. assimilative capacity) of the Kapuskasing River; the limits range from a low of 26 tonnes averaged over any 30 consecutive days (during summer months) to a high of 34 tonnes averaged over any 30 consecutive days (during winter months). However, on any given day the BOD5 discharge limit is 40 tonnes.
The company was out of compliance on 5 consecutive days for the 30 day BOD5 limit. The company initiated various procedures, such as using debarked wood, reducing the use of magnefite pulp, weak red liquor neutralization and the recycling of water to control their BOD5 discharge.

Five trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 18.6% to 72.6%.

IMIS NUMBER: 0001340009 SIC CODE: 031 MOE REGION: Northeast DISTRICT: Timmins

09/01/88

000134-00-0(9) SPRUCE FALLS POWER AND PAPER CO LTD KAPUSKASING REPORT DATE: 07 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 83900 | 84000 | 86700 | 96100 | 92900 | 96400 | 89100 | 90500 | 85100 | 82200 | 70900 | 74700 | 86041.66 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 25000 | 26000 | 27000 | 26000 | 26000 | 24000 | 19000 | 23000 | 20000 | 20000 | 20000 | 23000 | 23250 | |
| KG /DAY (BOD5 ) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | 1 |
| RESIDUE PARTIC. | ACTUAL | 6300 | 7300 | 8000 | 7700 | 8800 | 8700 | 7400 | 8100 | 4700 | 6300 | 4200 | 6600 | 7008.333 | |
| KG /DAY (RSP ) | GUIDELINE | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Stanley Hardware Div. of Stanley Canada Inc., New Hamburg

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Nith River to Grand River
INDIRECT: 203 km to Lake Erie

DESCRIPTION OF ACTIVITY: Makes tools, plates hardware, etc.

EFFLUENT QUALITY: Contains heavy metals and cyanide.

EFFLUENT TREATMENT: Chrome reduction, cyanide destruction, neutralization and sedimentation.

DISCHARGE TYPE: five day continuous flow 7 am to 12:00 pm to a storm sewer

COMMENTS:

Not in compliance. Discharge has persistant exceedances of nickel, zinc and suspended solids and less frequently of copper and cyanide. Company had been in compliance prior to MOE's more stringent 1985 limits and 100% production increase of 1985 - 1986. Company Phase 1 program to regain compliance implemented during 1987, consisted of treatment plant load reduction by nickel and zinc evaporators, spray rinses and clarifier internal modifications. This did not achieve compliance. MOE conducted survey and has issued Control Order in August 1988. Company has Certificate of Approval for new treatment plant, to be completed by end of March '89. Monthly requirements based on stream assimilation study.

IMIS NUMBER: 0001480003 SIC CODE: 301 MOE REGION: West Central DISTRICT: Cambridge

10/05/88

000148-00-0(3) STANLEY HARDWARE NEW HAMBURG REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | 304 | 304 | 304 | 304 | 304 | 304 | 304 | 304 | 304 | 304 | 304 | 304 | 304 | 0 |
| CYANIDE AVAIL | ACTUAL | 0.022 | 0.042 | 0.038 | 0.015 | 0.021 | 0.024 | 0.015 | 0.021 | 0.033 | 0.024 | 0.041 | 0.03 | 0.027166 | |
| KG /DAY (CCNAUR) | REQUIREMENT | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 0.027 | 5 |
| CHROMIUM UNF.TOT. | ACTUAL | 0.158 | 0.045 | 0.182 | 0.297 | 0.042 | 0.051 | 0.024 | 0.018 | 0.042 | 0.012 | 0.039 | 0.06 | 0.080833 | |
| KG /DAY (CRUT ) | REQUIREMENT | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0 |
| COPPER UNF.TOT. | ACTUAL | 0.255 | 0.174 | 0.172 | 0.255 | 0.234 | 0.324 | 0.172 | 0.138 | 0.324 | 0.486 | 0.345 | 0.31 | 0.26575 | |
| KG /DAY (CUUT ) | REQUIREMENT | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 5 |
| NICKEL UNF.TOT. | ACTUAL | 0.441 | 0.387 | 0.34 | | 0.309 | 0.33 | 0.249 | 0.288 | 0.384 | 0.231 | 0.274 | 0.31 | 0.322090 | |
| KG /DAY (NIUT ) | REQUIREMENT | 0.18 | 0.18 | 0.18 | | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 11 |
| PH | ACTUAL | 8.5 | 8.5 | 8.7 | 8.8 | 9.1 | 9.3 | 8.9 | 9.1 | 9.2 | 9.3 | 9.4 | 9.325 | 9.010416 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 7.2 | 7.95 | 8.95 | 12.9 | 10.65 | 10.5 | 4.5 | 5.1 | 16.5 | 19.8 | 8.4 | 3.9 | 9.695833 | |
| KG /DAY (RSP ) | REQUIREMENT | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 4.5 | 11 |
| ZINC UNF.TOT. | ACTUAL | 0.315 | 0.315 | 0.174 | 0.411 | 0.189 | 0.303 | 0.366 | 0.237 | 0.261 | 0.207 | 0.432 | 0.71 | 0.326666 | |
| KG /DAY (ZNUT ) | REQUIREMENT | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 12 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 44 TIMES OUT OF 95, FOR A TOTAL COMPLIANCE RECORD OF 54% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: St. Marys Paper Inc.
& PLANT LOCATION: Sault Ste. Marie

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: St. Mary's River
INDIRECT:

DESCRIPTION OF ACTIVITY: Purchased Kraft pulp is added to the pulp made by the stone groundwood process to make paper specialties. Clay line was added Dec/84. Now a slush pulp multi-product mill (with no white-water return).

EFFLUENT QUALITY: Contains suspended solids ( bark, clay, wood) and soluble organic compounds like sugars.

EFFLUENT TREATMENT: Bull screen preceedes clarifier with scum collector on overflow. Underflow solids are dewatered and burned. An internal recovery system removes excess clays.

DISCHARGE TYPE: Continuous through a submerged diffuser

COMMENTS:

In compliance.

The mill's final effluent is normally acutely lethal to fish. Fifteen trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 12.6% to 34.6%.

IMIS NUMBER: 0000860304 SIC CODE(S): 271 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

10/07/88

000086-03-0(4) ST. MARYS PAPER INC. SAULT STE MARIE REPORT DATE: 26 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 26200 | 27750 | 29152 | 27769 | 28547 | 27528 | 25088 | 24292 | 25617 | 25598 | 26673 | 28704 | 26910 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 2100 | 4110 | 6230 | 3360 | 3720 | 3590 | 2990 | 2160 | 1990 | 1960 | 760 | 2520 | 2957.5 | |
| KG /DAY (BOD5 ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 3700 | 4740 | 3860 | 3860 | 3050 | 3300 | 3380 | 2390 | 2660 | 3240 | 3940 | 3270 | 3449.166 | 0 |
| KG /DAY (RSP ) | GUIDELINE | 6451 | 6260 | 6991 | 6322 | 7074 | 7157 | 6353 | 6037 | 6325 | 6493 | 6839 | 6965 | 6605.6 | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Steetley Talc Limited, Foleyet

INDUSTRIAL SECTOR: Mining, Milling, Smelting

RECEIVING WATERBODY: DIRECT: Crawford Creek
INDIRECT: Nat River

DESCRIPTION OF ACTIVITY: Mining and milling of talc.

EFFLUENT QUALITY: Contains suspended solids.

EFFLUENT TREATMENT: None.

DISCHARGE TYPE: Continuous

COMMENTS:

Company in compliance. Samples taken quarterly, sampling started in latter part of 1987.

IMIS NUMBER: 0096920004 SIC CODE(S): MOE REGION: Northeast DISTRICT: Timmins

05/30/88

009692-00-0(4) STEETLEY TALC LIMITED FOLEYET REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RESIDUE PARTIC. | ACTUAL | | | | | | | | | 1 | | | | 1 | |
| MG/L (RSP ) | GUIDELINE | | | | | | | | | 15 | | | | 15 | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 1, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Stelco Inc.
& PLANT LOCATION: Hilton Works
Hamilton

INDUSTRIAL SECTOR: Iron and Steel

RECEIVING WATERBODY: DIRECT: Hamilton Harbour
INDIRECT: Lake Ontario

DESCRIPTION OF ACTIVITY: All phases of iron and steel production including coke making, ironmaking, steelmaking and rolling.

EFFLUENT QUALITY: Contains heavy metals and light organics.

EFFLUENT TREATMENT: Recycle, clarification, filtration, oil recovery and ion exchange.

DISCHARGE TYPE: continuous through five shore outfalls

COMMENTS:

Since the diversion of #1 and #2 Interceptor sumps, April 1987, ammonia, cyanide and phenol loadings are in compliance. Suspended solids and solvent extractables (oils) were reduced in 1988 by rerouting of the Oil Recovery Plant effluent to the Eastside Filtration plant. Since phosphorus is consistently 98% below target loads, it is not being reported.

IMIS NUMBER: 0000950006 SIC CODE: 291 MOE REGION: West Central DISTRICT: Hamilton

08/25/88

000095-00-0(6) STELCO INC HAMILTON REPORT DATE: 14 JUNE 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/004/ LAKE ONTARIO

INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0601 0602 1100 1200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1029209 | 1098945 | 1049893 | 1017186 | 1044442 | 1049893 | 1029451 | 1076095 | 1076089 | 989721 | 1058070 | 104442 | 1046953 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CYANIDE AVAIL | ACTUAL | 232.6 | 942.2 | 315.28 | 0* | 10.17 | 0* | 0.39 | 22.26 | 12.61 | 0 | 0.12 | 13.34 | 118.95 | |
| KG /DAY (CCNAUR) | GUIDELINE | 212 | 212 | 212 | 212 | 212 | 212 | 212 | 212 | 212 | 212 | 212 | 212 | 212 | 3 |
| CHEM. OX DEMAND | ACTUAL | 12780 | 13540 | 16848 | 10468 | 8310 | 19303 | 1489 | 5850 | 2490 | 5414 | 9925 | 2277.5 | 9057 | |
| KG /DAY (COD ) | GUIDELINE | 26400 | 26400 | 26400 | 26400 | 26400 | 26400 | 26400 | 26400 | 26400 | 26400 | 26400 | 26400 | 26400 | 0 |
| IRON UNF.TOT. | ACTUAL | 2791 | 1424 | 8084 | 1618 | 3097 | 301 | 190.4 | 293.9 | 573.9 | 126.1 | 1110.8 | 1628 | 1769 | |
| KG /DAY (FEUT ) | GUIDELINE | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 0 |
| NH3-N TOTAL | ACTUAL | 499 | 822 | 1294.2 | 2255.19 | 88.9 | 267.4 | 0* | 206.41 | 0 | 385 | 295.46 | 1572 | 640.46 | |
| KG /DAY (NNHTUR) | GUIDELINE | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 10550 | 0 |
| PH | ACTUAL | 7.916 | 7.232 | 7.676 | 7.574 | 7.542 | 7.406 | 7.398 | 7.2 | 7.78 | 8.108 | 7.706 | 8.022 | 7.63 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 56 | 201.08 | 54.2 | 23.68 | 14.59 | 0.2 | 0.49 | 4.53 | 0.57 | 0.66 | 0 | 17.74 | 30.95 | |
| KG /DAY (PHNOL ) | GUIDELINE | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 21.8 | 4 |
| RESIDUE PARTIC. | ACTUAL | 8500 | 7886 | 23873 | 10801 | 10812.8 | 3223 | 1204.59 | 10133.1 | 4703 | 3254 | 7095 | 8786 | 8356 | |
| KG /DAY (RSP ) | GUIDELINE | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 1 |
| SOLVENT EXTRACT. | ACTUAL | 0* | 4969.5 | 1069.3 | 400.298 | 2150.19 | 0* | 726.728 | 509.1 | 2859.2 | 1073.36 | 0 | 826.5 | 1010 | |
| KG /DAY (SOLEXT) | GUIDELINE | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 15900 | 0 |
| ZINC UNF.TOT. | ACTUAL | 60.34 | 106.4 | 87.68 | 59.2 | 61.6 | 29.6 | 21.52 | 1.66 | 43.6 | 5.7 | 54.67 | 57.97 | 4916 | |
| KG /DAY (ZNUT ) | GUIDELINE | 1055 | 1055 | 1055 | 1055 | 1055 | 1055 | 1055 | 1055 | 1055 | 1055 | 1055 | 1055 | 1055 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 8 TIMES OUT OF 108, FOR A TOTAL COMPLIANCE RECORD OF 93% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Stelco Inc. Lake Erie Works
& PLANT LOCATION: Nanticoke

INDUSTRIAL SECTOR: Iron and Steel

RECEIVING WATERBODY: DIRECT: Centre Creek
INDIRECT: 0.15 km to Lake Erie

DESCRIPTION OF ACTIVITY: Coke ovens with a by-product plant, blast furnace, basic oxygen furnace and a hot strip mill are used to make steel.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Final wastewater treatment consisting of equalization, clarification, alkaline breakpoint chlorination, filtration and final holding pond.

DISCHARGE TYPE: continuous through an open outfall

COMMENTS:

Treatment and recirculation within plant is maximized. Best Practical Technology used to treat process wastewaters. Requirement for process effluent set by Certificate of Approval.

IMIS NUMBER: 0000950105 SIC CODE: 291 MOE REGION: West Central DISTRICT: Haldimand-Norfold/Brant

08/26/88

000095-01-0(5) STELCO INC, LAKE ERIE WORKS — NANTICOKE — REPORT DATE: 19 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 44668.9 | 39588 | 38500 | 39424 | 37135 | 42232 | 42457 | 46656 | 27475 | 43822 | 45274 | 41213 | 40703.74 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CYANIDE AVAIL | ACTUAL | 4.91 | 3.6 | 3.2 | 5.4 | 2.1 | 2.1 | 2 | 1.4 | 1 | 1.8 | 2.1 | 1.4 | 2.584166 | |
| KG /DAY (CCNAUR) | GUIDELINE | | | | | | | | | | | | | | |
| CYANIDE FREE | ACTUAL | 2.2 | 2 | 2 | 2 | 1.9 | 2.1 | 2.1 | 2.3 | 0.1 | 0.1 | 2.3 | 2.1 | 1.766666 | |
| KG /DAY (CCNFUR) | REQUIREMENT | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 0 |
| CADMIUM UNF.TOT. | ACTUAL | | <.27 | <.19 | 0.28 | <.19 | <.21 | 0.21 | 0.1 | 0.14 | 0.22 | 0.23 | 0.21 | 0.04 | |
| KG /DAY (CDUT ) | GUIDELINE | | | | | | | | | | | | | | |
| CHLORINE FREE | ACTUAL | 4.46 | 4.3 | 3.9 | 3.9 | 3.7 | 5.1 | 4.2 | 4.7 | 2.7 | 4.4 | 4.5 | 4.1 | 4.163333 | |
| KG /DAY (CLFREE) | REQUIREMENT | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 13.1 | 0 |
| CHROMIUM UNF.TOT. | ACTUAL | 0.45 | 0.4 | 0.5 | 0.8 | 0.8 | 0.8 | 0.6 | 0.7 | 0.4 | 0.5 | 0.6 | 1.1 | 0.6375 | |
| KG /DAY (CRUT ) | REQUIREMENT | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 6.5 | 0 |
| COPPER UNF.TOT. | ACTUAL | 0.45 | 0.4 | 0.5 | 0.6 | 0.6 | 0.4 | 0.4 | 0.6 | 0.3 | 0.8 | 0.6 | 0.5 | 0.5125 | |
| KG /DAY (CUUT ) | REQUIREMENT | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 2.87 | 0 |
| IRON UNF.TOT. | ACTUAL | 34.3 | 24.2 | 1.7 | 18.9 | 16.4 | 10.6 | 11.7 | 23 | 5 | 19.1 | 18.8 | 22 | 17.14166 | |
| KG /DAY (FEUT ) | REQUIREMENT | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 39.2 | 0 |
| NH3-N TOTAL | ACTUAL | 5.35 | 6.6 | 4.9 | 6.7 | 14.9 | 5.1 | 6.6 | 10.4 | 3.6 | 12.3 | 4.7 | 6.8 | 7.329166 | |
| KG /DAY (NNHTUR) | REQUIREMENT | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 24.8 | 0 |
| LEAD UNF.TOT. | ACTUAL | 3.13 | 3.16 | 2.9 | 5.9 | 6.4 | 6.3 | 4 | 6 | 5 | 4.8 | 3.5 | 9.4 | 5.040833 | |
| KG /DAY (PBUT ) | REQUIREMENT | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 10.5 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

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THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 84, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

000095-01-0(5) STELCO INC, LAKE ERIE WORKS NANTICOKE REPORT DATE: 25 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH | ACTUAL | (7.7-8.3) | (8.0-8.3) | (7.9-8.4) | (8.2-8.6) | (8.5-8.8) | (8.2-9.0) | (7.8-8.5) | (7.7-8.1) | (7.8-8.1) | (8.1-8.2) | (8.0-8.2) | (8.1-8.2) | | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.09 | 0.053 | 0.062 | 0.069 | 0.05 | 0.42 | 0.018 | 0.042 | 0.034 | 0.069 | 0.045 | 0.074 | 0.0855 | |
| KG /DAY (PHNOL ) | REQUIREMENT | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0.47 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 4.46 | 3.16 | 4.6 | 3.9 | 3.7 | 4.2 | 4.2 | 4.7 | 2.7 | 4.6 | 3.9 | 5.9 | 4.168333 | |
| KG /DAY (PPUT ) | REQUIREMENT | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 26.1 | 0 |
| RESIDUE PARTIC. | ACTUAL | 395.6 | 471.1 | 301.1 | 336 | 278 | 187.5 | 330.1 | 577.4 | 97.4 | 361.5 | 543 | 377.1 | 354.65 | |
| KG /DAY (RSP ) | REQUIREMENT | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 565.5 | 1 |
| SOLVENT EXTRACT. | ACTUAL | 111.75 | 79.2 | 92.4 | 138 | 111 | 121.6 | 138 | 121.2 | 68.6 | 142.4 | 141.3 | 104.1 | 114.1291 | |
| KG /DAY (SOLEXT) | REQUIREMENT | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 164.6 | 0 |
| ZINC UNF.TOT. | ACTUAL | 2.23 | 2.8 | 1.7 | 4.7 | 2.6 | 4.6 | 4.4 | 1.4 | 2 | 3.6 | 3.4 | 2.8 | 3.019166 | |
| KG /DAY (ZNUT ) | REQUIREMENT | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 15.7 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 72, FOR A TOTAL COMPLIANCE RECORD OF 99% IN 1987.

000095-01-0(5) STELCO INC, LAKE ERIE WORKS NANTICOKE REPORT DATE: 25 AUG 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 4234 | | | 5556 | | | 4812 | | | 4501.4 | | | 4775.85 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 36 | | | 55.6 | | | 28.9 | | | 29.3 | | | 37.45 | |
| KG /DAY (BOD5 ) | GUIDELINE | 63.5 | | | 83.34 | | | 72.18 | | | 67.521 | | | 71.63525 | 0 |
| PHOSPHOR UNF.TOT. | ACTUAL | 1.3 | | | 1.7 | | | 3.8 | | | 3.2 | | | 2.5 | |
| KG /DAY (PPUT ) | GUIDELINE | 4.233 | | | 5.556 | | | 4.812 | | | 4.5014 | | | 4.7756 | 0 |
| RESIDUE PARTIC. | ACTUAL | 78.7 | | | 77.8 | | | 28.9 | | | 40.5 | | | 56.475 | |
| KG /DAY (RSP ) | GUIDELINE | 63.5 | | | 83.34 | | | 72.18 | | | 67.521 | | | 71.63525 | 1 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Stelco Page Hersey Works
& PLANT LOCATION: Welland

INDUSTRIAL SECTOR: Iron and Steel

RECEIVING WATERBODY: DIRECT: Welland Canal
INDIRECT:

DESCRIPTION OF ACTIVITY: Small diameter seamless pipe is made from steel billets.

EFFLUENT QUALITY:

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous through a diffuser

COMMENTS:

In compliance. Company treating effluent for PCB contamination in sand/carbon filter system. Treatment system is approved under REG 11/82 Direction.

IMIS NUMBER: 0000950303 SIC CODE: 292 MOE REGION: West Central DISTRICT: Welland

07/20/88

000095-03-0(3) STELCO PAGE HERSEY WELLAND REPORT DATE: 13 SEP 88

CONTROL POINT: 0300 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 9929.47 | 9929.47 | 7865.79 | 12466.4 | 8688.89 | 8012 | 10798.4 | 10302.4 | 10645.8 | 8476 | 7179 | 7860 | 9929.468 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| IRON UNF.TOT. | ACTUAL | 4.6 | 4.6 | 2.36 | 3.74 | 4.34 | 0.87 | 3.24 | 4.12 | 6.39 | 5.09 | 2.51 | 4.48 | 3.861666 | |
| KG /DAY (FEUT ) | GUIDELINE | | | - | - | - | - | - | - | - | - | | | | |
| PH | ACTUAL | 7.85 | 7.5 | 7.47 | 8.18 | 7.88 | 7.88 | 7.65 | 7.58 | 7.74 | 7.64 | 7.81 | 7.89 | 7.755833 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.19 | 0 | 0 | 0 | 0.265833 | |
| KG /DAY (RSP ) | GUIDELINE | 138.44 | 138.44 | 118 | 187 | 130 | 120.18 | 162 | 154.53 | 160 | 127.14 | 107.685 | 117.9 | 138.4429 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4.12 | 11.7 | 0 | 5.03 | 5.5 | 2.195833 | |
| KG /DAY (SOLEXT) | GUIDELINE | 138.44 | 138.44 | 118 | 187 | 130 | 120.18 | 162 | 162 | 160 | 127.14 | 107.685 | 117.9 | 139.0654 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Stelco Welland Tube Works
Welland

INDUSTRIAL SECTOR: Iron and Steel

RECEIVING WATERBODY: DIRECT: Lyons Creek to Welland River to Niagara River
INDIRECT:

DESCRIPTION OF ACTIVITY: Flat steel is made into very large diameter pipe.

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Oil water separation.

DISCHARGE TYPE: continuous through an open outfall

COMMENTS:

Company not operated when solvent extractables was exceeded. Solids exceedance attributed to storm runoff conditions.

IMIS NUMBER: 0000950204 SIC CODE: 292 MOE REGION: West Central DISTRICT: Welland

09/19/88

000095-02-0(4) STELCO WELLAND TUBES WELLAND REPORT DATE: 13 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 218.55 | 322.1 | 313.182 | 385.696 | 434.625 | 304.81 | 446.577 | 927.833 | 627.857 | 691.1 | 68.767 | 7.742 | 395.7365 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| IRON UNF.TOT. | ACTUAL | 0.17 | 0.23 | 0.38 | 0.15 | 2.13 | 0.72 | 0.4 | 0.46 | 0.82 | 0.48 | 0.6 | 0.005 | 0.545416 | |
| KG /DAY (FEUT ) | GUIDELINE | - | - | - | - | - | - | - | - | - | - | - | - | | |
| PH | ACTUAL | 7.81 | 7.27 | 7.02 | 7.26 | 5.54 | 6.9 | 6.78 | 7.74 | 7.51 | 7.15 | 7.55 | 7.63 | 7.18 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 1.31 | 2.87 | 3.35 | 3.86 | 4.74 | 3.05 | 9.29 | 3.25 | 9.29 | 7.33 | 0.04 | 0.029 | 4.034083 | |
| KG /DAY (RSP ) | GUIDELINE | 3.27 | 4.83 | 4.69 | 5.77 | 6.51 | 4.56 | 6.69 | 13.91 | 9.41 | 10.36 | 1.03 | 0.11 | 5.928333 | 1 |
| SOLVENT EXTRACT. | ACTUAL | 0.87 | 0.42 | 2.82 | 0.39 | 9.69 | 2.29 | 1.56 | 0.93 | 0.75 | 4.29 | 0.07 | 0.008 | 2.007333 | |
| KG /DAY (SOLEXT) | GUIDELINE | 3.27 | 4.83 | 4.69 | 5.77 | 6.51 | 4.56 | 6.69 | 13.91 | 9.41 | 10.36 | 1.03 | 0.11 | 5.928333 | 1 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 94% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME & PLANT LOCATION: Strathcona Paper Company, Camden East Twp.

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Napanee River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Wastepaper is cleaned and repulped to form coated paperboards.

EFFLUENT QUALITY: Permitted loadings are a function of Napanee River flows as detailed on Certificate of Approval #4-024-86-876 dated May 28, 1987. Suspended solids guideline based on Federal Pulp and Paper Effluent Regulation.

EFFLUENT TREATMENT: "Savealls" and a new (1986) whitewater recycle system plus a "Krofta" clarifier have reduced by over 90% the solids discharged to a system of seven sedimentation and aeration lagoons (75 horsepower).

DISCHARGE TYPE: One continuous on-shore outfall from lagoon system (control point 0200).

COMMENTS:

In compliance. New flow monitoring installation and single outfall installed in 1987.

IMIS NUMBER: 0001740000 SIC CODE: 271 MOE REGION: Southeast DISTRICT: Kingston

09/01/88

000174-00-0(0) STRATHCONA PAPER COMPANY TWP OF CAMDEN EAST REPORT DATE: 14 JUN 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: / / HYDROLOGIC CODE (STORET)

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING | PARAMETERS | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 3086 | 2834 | 3146 | 3029 | 2820 | 2827 | 2280 | 2415 | 2602 | 3042 | 3409 | 3368 | 2904.833 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 173 | 172 | 188 | 99 | 140 | 153 | 60 | 55 | 65 | 156 | 227 | 100 | 132.3333 | |
| KG /DAY (BOD5 ) | REQUIREMENT | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | S/C | 0 |
| RESIDUE PARTIC. | ACTUAL | 96 | 98 | 102 | 118 | 176 | 165 | 69 | 86 | 100 | 232 | 224 | 140 | 133.8333 | |
| KG /DAY (RSP ) | GUIDELINE | 1088 | 1088 | 1088 | 1088 | 1088 | 1088 | 1088 | 1088 | 1088 | 1088 | 1088 | 1088 | 1088 | 0 |

NOTE: PH LIMIT 5.5-9.5. 0* INDICATES INTAKE EXCEEDED DISCHARGE. S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 24. FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Suncor Sunoco Group
& PLANT LOCATION: Sarnia

INDUSTRIAL SECTOR: Petroleum Refining

RECEIVING WATERBODY: DIRECT: St. Clair River
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT QUALITY: Contains soluble and insoluble compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous at shore

COMMENTS:

In compliance.

Three trout bioassays conducted in 1987 indicated the final treated effluent and effluent from the impounding basin to have been not acutely lethal to test fish.

IMIS NUMBER: 0000490102 SIC CODE: 3651 MOE REGION: Southwest DISTRICT: Sarnia

08/25/88

000049-01-0(2) SUNCOR SUNOCO GROUP PO BOX 307 SARNIA REPORT DATE: 24 MAY 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 100309 | 95813.3 | 83161.6 | 94035.8 | 96710.3 | 127722 | 114077 | 113993 | 110793 | 89563.4 | 41054.3 | 91125.9 | 96529.88 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHLORIDE UNF.REAC | ACTUAL | 2663 | 3138 | 1949 | 1325 | 1532 | 2695 | 2765 | 996 | 1988 | 2248 | 1475 | 2118 | 2074.333 | |
| KG /DAY (CLIDUR) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 12.5 | 31 | 28 | 44 | 165.3 | 60.2 | 30 | 19.2 | 36 | 24.4 | 19.6 | 40.9 | 42.59166 | |
| KG /DAY (NNHTFR) | GUIDELINE | 1003.09 | 958.133 | 831.616 | 940.358 | 967.103 | 1277.22 | 1140.77 | 1139.93 | 1107.92 | 895.634 | 410.543 | 911.259 | 965.298 | 0 |
| PHENOLS UNF-REAC | ACTUAL | 0.14 | 0.38 | 0.27 | 0.68 | 0.19 | 0.15 | 0.08 | 0.32 | 0.13 | 0.17 | 0.08 | 0.34 | 0.244166 | |
| KG /DAY (PHNOL ) | GUIDELINE | 2.00618 | 1.91626 | 1.66323 | 1.88071 | 1.9342 | 2.55444 | 2.28154 | 2.27986 | 2.21585 | 1.79127 | 0.821086 | 1.82252 | 1.930595 | 0 |
| RESIDUE FILTERED | ACTUAL | 7132 | 6951 | 6431 | 10402 | 8825 | 9592 | 7565 | 9613 | 7974 | 6817 | 5455 | 6848 | 7800.416 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 140 | 321 | 107 | 189 | 294.2 | 401 | 171 | 200 | 201 | 149 | 93 | 201 | 205.6 | |
| KG /DAY (RSP ) | GUIDELINE | 1504.64 | 1437.2 | 1247.42 | 1410.54 | 1450.65 | 1915.83 | 1711.16 | 1709.89 | 1661.89 | 1343.45 | 615.815 | 1366.89 | 1447.947 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 60 | 81.8 | 38.6 | 62.5 | 128.4 | 77 | 37.9 | 70 | 100 | 52.5 | 23.4 | 98 | 69.175 | |
| KG /DAY (SOLEXT) | GUIDELINE | 1003.09 | 958.133 | 831.616 | 940.358 | 967.103 | 1277.22 | 1140.77 | 1139.93 | 1107.92 | 895.634 | 410.543 | 911.259 | 965.298 | 0 |
| SULPHIDE UNF.REAC | ACTUAL | 0 | 0 | 0 | 0 | 0.3 | 0.3 | 0 | 0 | 0.2 | 1.4 | 0 | 0 | 0.183333 | |
| KG /DAY (SSIDUR) | GUIDELINE | | | | | | | | | | | | | | |
| CARBON TOTAL | ACTUAL | 249 | 146 | 207 | 210 | 359 | 402 | 163 | 139.6 | 287 | 153 | 55 | 476 | 237.2166 | |
| KG /DAY (TOC ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Teck-Corona Inc. Marathon

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Lim Lake
INDIRECT: Lake Superior

DESCRIPTION OF ACTIVITY: Gold mining and milling

EFFLUENT QUALITY: Heavy metals, suspended solids, pH, cyanide

EFFLUENT TREATMENT: Approved treatment utilizing sulphur dioxide/air process and a metal precipitation stage utilizing precipitation with ferric sulphate. Disposal area decant to Lim Lake. Mill site sedimentation pond effluent to Cedar Creek.

DISCHARGE TYPE: continuous

COMMENTS:

There was one exceedance for copper in March 1987. Treatment process modifications are being examined.

Six trout bioassays conducted in 1987 indicated the final treated effluent to have been non-acutely lethal to the test fish.

IMIS NO.: 0031750003 SIC CODE: MOE REGION: Northwest DISTRICT: Thunder Bay

07/05/88

003175-00-0(3) TECK-CORONA OPERATING CORPORATION MARATHON REPORT DATE: 15 APR 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0 | |
| M3/ DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ARSENIC UNF.TOT. | ACTUAL | 0.005 | 0.003 | 0.002 | 0.004 | 0.001 | 0.003 | 0.001 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.002083 | |
| MG/L (ASUT ) | GUIDELINE | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0 |
| CYANIDE FREE | ACTUAL | 1.115 | 1.74 | 1.15 | 0.263 | 0.127 | 0.015 | 0.06 | 0.012 | 0.008 | 0.006 | 0.016 | 0.069 | 0.38175 | |
| MG/L (CCNFUR) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.151 | 0.61 | 0.155 | 0.032 | 0.302 | 0.101 | 0.42 | 0.889 | 0.069 | 0.014 | 0.026 | 0.004 | 0.231 | 0 |
| MG/L (CUUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| IRON UNF.TOT. | ACTUAL | 0.9 | | 0.534 | 0.23 | 1 | 0.21 | 0.187 | 0.17 | 0.12 | 0.095 | 0.134 | 0.178 | 0.341636 | |
| MG/L (FEUT ) | GUIDELINE | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |
| MERCURY UNF.TOT. | ACTUAL | 0.776 | 0.22 | 0.168 | 0.42 | 0.14 | 0.138 | 0.001 | 0.052 | 0.06 | 0.05 | 0.05 | 0.09 | 0.180416 | |
| UG/L (HGUT ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.74 | 7.09 | 7.24 | 7.12 | 7.19 | 7.22 | 9.11 | 8 | 7.05 | 6.83 | 6.86 | 6.95 | 7.366666 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 3.65 | 4.85 | 4.76 | 5.45 | 7.82 | 3.57 | 0.35 | 1.05 | 3.33 | 1.15 | 3.2 | 2.4 | 3.465 | |
| MG/L (RSP ) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | 0.005 | 0.163 | 0.009 | 0.005 | 0.009 | 0.005 | 0.01 | 0.01 | 0.03 | 0.044 | 0.076 | 0.011 | 0.031416 | |
| MG/L (ZNUT ) | GUIDELINE | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 |

NA= NOT AVAILABLE

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 59, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Tend-R-Fresh Div. Maple Leaf Mills Poultry Products Inc., Petersburg

INDUSTRIAL SECTOR: Food and Beverage

RECEIVING WATERBODY: DIRECT: Alder Creek to Nith River to Grand River
INDIRECT: 195 km to Lake Erie

DESCRIPTION OF ACTIVITY: Birds are slaughtered, processed, readied for retail sale.

EFFLUENT QUALITY: Contains dissolved organics and phosphorus.

EFFLUENT TREATMENT: Screening, aeration, phosphorus removal, sedimentation and chlorination.

DISCHARGE TYPE: seven day continuous flow through an open outfall

COMMENTS:

Not in compliance. Frequent monthly exceedances. Treatment plant caused severe odour problems in summer. Sludge land disposal took place in fall. Company has Certificate of Approval for wastewater treatment plant modifications, to be completed during 1988. Monthly requirements are those of C. of A.

IMIS NUMBER: 0001490002 SIC CODE: 1012 MOE REGION: West Central DISTRICT: Cambridge

08/26/88

000149-00-0(2) TEND-R-FRESH DIVISION PETERSBURG REPORT DATE: 27 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1230 | 1045 | 1223 | 1107 | 993 | 1292 | 970 | 640 | 680.2 | 519.48 | 558.97 | 578.78 | 903.1191 | |
| M3 /DAY (FTFLOW) | REQUIREMENT | 2272 | 2272 | 2272 | 2272 | 2272 | 2272 | 2272 | 2272 | 2272 | 2272 | 2272 | 2272 | 2272 | 0 |
| BOD 5 DAY | ACTUAL | 26.9 | 32.86 | 97 | 12.8 | 7.1 | 18.77 | 189.26 | 11.88 | 5.3 | 2.51 | 12.81 | 11.22 | 35.70083 | |
| KG /DAY (BOD5 ) | REQUIREMENT | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 3 |
| NH3-N TOTAL | ACTUAL | 29.6 | 24.67 | | | 33.55 | 24.8 | 20.49 | 9.65 | 1.4 | 1.21 | 2.15 | 2.33 | 14.985 | |
| KG /DAY (NNHTFR) | REQUIREMENT | 8 | 8 | | | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 6 |
| PH | ACTUAL | 6.82 | 7.03 | 6.5 | 7.6 | 7.9 | 7.8 | 7.5 | 7.51 | 7.22 | 7.45 | 7.35 | 7.36 | 7.336666 | 0 |
| (PH ) | REQUIREMENT | | | | | | | | | | | | | | |
| PHOSPHOR UNF.TOT. | ACTUAL | 1.88 | 0.61 | 3.1 | 0.4 | 0.28 | 0.76 | 8.5 | 0.26 | 0.33 | 0.14 | 0.23 | 0.18 | 1.389166 | |
| KG /DAY (PPUT ) | REQUIREMENT | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 3 |
| RESIDUE PARTIC. | ACTUAL | 65.5 | 34 | 154 | 11.6 | 5.91 | 25.64 | 385.98 | 32.43 | 8.21 | 4.29 | 15.18 | 14.58 | 63.11 | |
| KG /DAY (RSP ) | GUIDELINE | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 5 |
| SOLVENT EXTRACT. | ACTUAL | 14.9 | 8.1 | 26 | 4 | 1.83 | 4.21 | 45.35 | 2.6 | 2.16 | 0.85 | 5.94 | 6.44 | 10.19833 | |
| KG /DAY (SOLEXT) | REQUIREMENT | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 2 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 19 TIMES OUT OF 82, FOR A TOTAL COMPLIANCE RECORD OF 77% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Texaco Canada Ltd
& PLANT LOCATION: Port Credit

INDUSTRIAL SECTOR: Petroleum Refining

RECEIVING WATERBODY: DIRECT: Lake Ontario
INDIRECT:

DESCRIPTION OF ACTIVITY:

EFFLUENT QUALITY:

EFFLUENT TREATMENT: Primary (API separator and settling pond).

DISCHARGE TYPE: Continuous

COMMENTS:

Decommissioning activities.

IMIS NO.: 0000520106 SIC CODE: 365 MOE REGION: Central DISTRICT: Halton-Peel

02/88

000052-01-0(6) TEXACO CANADA INC. MISSISSAUGA REPORT DATE: 24 MAY 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | 6819.13 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.8 | 7.9 | 7.2 | 7.6 | 7.7 | 7.6 | 7.7 | 7.6 | 7.6 | 7.6 | 7.3 | 7.6 | | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 0.01 | 0.01 | 0.025 | 0.05 | 0.03 | 0.005 | 0.02 | 0.05 | 0.04 | 0.035 | 0 | 0.025 | | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.136382 | 0.136382 | 0.136382 | 0.136382 | 0.136382 | 0.136382 | 0.136382 | 0.136382 | 0.136382 | 0.136382 | 0.136382 | 0.136382 | | 0 |
| RESIDUE PARTIC. | ACTUAL | 6.8 | 0 | 165.5 | 248.57 | 14.98 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39.62272 | |
| KG /DAY (RSP ) | GUIDELINE | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 102.287 | 2 |
| SOLVENT EXTRACT. | ACTUAL | 20.79 | 0 | 14.96 | 3.41 | 2.72 | 1.36 | 1.36 | 0 | 0 | 0 | 0 | 0 | 4.054545 | |
| KG /DAY (SOLEXT) | GUIDELINE | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 68.1913 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 2 TIMES OUT OF 44, FOR A TOTAL COMPLIANCE RECORD OF 95% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: Texaco Canada Inc.
& PLANT LOCATION: (Nanticoke Refinery)
Jarvis

INDUSTRIAL SECTOR: Petroleum Refining

RECEIVING WATERBODY: DIRECT: Lake Erie
INDIRECT:

DESCRIPTION OF ACTIVITY: Crude oil is converted into a wide range of petroleum products.

EFFLUENT QUALITY: Contains soluble and insoluble compounds from crude oil at the parts per billion level.

EFFLUENT TREATMENT: Primary oil separation, equalization, dissolved air flotation, biological treatment, clarification and filtration, and final holding ponds.

DISCHARGE TYPE: continuous through a submerged diffuser

COMMENTS:

Degree of air cooling is maximized.

IMIS NUMBER: 0000520205 SIC CODE: 3651 MOE REGION: West Central DISTRICT: Haldimand-Norfolk/Brant

02/88

000052-02-0(5) TEXACO CANADA INC, NANTICOKE REFINERY JARVIS REPORT DATE: 26 AUG 88

CONTROL POINT: 0200 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 7925 | 5008 | 5046 | 5883 | 5025 | 4439.6 | 4540 | 5755 | 5368 | 4344.44 | 4978.4 | 7064.7 | 5448.095 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 0.12 | 0.15 | 0.04 | 0 | 0.5 | 0.15 | 3.18 | 0.46 | 1.19 | 0.154 | 0 | 0.44 | 0.532 | |
| KG /DAY (NNHTUR) | GUIDELINE | 79.25 | 50.08 | 50.46 | 58.83 | 50.25 | 44.396 | 45.4 | 57.55 | 53.68 | 43.4444 | 49.784 | 70.647 | 54.48095 | 0 |
| PHENOLS UNF-REAC | ACTUAL | 0.01 | 0.01 | 0.01 | 0.01 | 0.04 | 0.01 | 0.01 | 0.02 | 0.02 | 0.009 | 0.01 | 0 | 0.01325 | |
| KG /DAY (PHNOL ) | GUIDELINE | 0.156 | 0.1 | 0.109 | 0.118 | 0.101 | 0.089 | 0.091 | 0.115 | 0.107 | 0.087 | 0.1 | 0.141 | 0.1095 | 0 |
| RESIDUE PARTIC. | ACTUAL | 0 | 0 | 0 | 0 | 10.41 | 2.21 | 5.46 | 10.38 | 0 | 0 | 0 | 0 | 2.371666 | |
| KG /DAY (RSP ) | GUIDELINE | 118.875 | 75.12 | 75.69 | 88.245 | 75.375 | 66.594 | 68.1 | 86.325 | 80.52 | 65.1666 | 74.676 | 105.97 | 81.72138 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 17 | 0 | 7.17 | 3.56 | 3.77 | 3.14 | 3.85 | 2.09 | 4.2 | 11.21 | 1.98 | 13.52 | 5.9575 | |
| KG /DAY (SOLEXT) | GUIDELINE | 79.25 | 50.08 | 50.46 | 58.83 | 50.25 | 44.396 | 45.4 | 57.55 | 53.68 | 43.4444 | 49.784 | 70.647 | 54.48095 | 0 |
| SULPHIDE UNF.REAC | ACTUAL | 0 | 0 | 0 | 0.08 | 0.11 | 0.01 | 0.08 | 0.07 | 0.23 | 0 | 0 | 0 | 0.048333 | |
| KG /DAY (SSIDUR) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 0 TIMES OUT OF 48, FOR A TOTAL COMPLIANCE RECORD OF 100% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME: The Algoma Steel Corporation Ltd. INDUSTRIAL SECTOR: Iron and Steel
& PLANT LOCATION: Sault Ste. Marie

RECEIVING WATERBODY: DIRECT: St. Mary's River
INDIRECT: East Davignon Creek
DESCRIPTION OF ACTIVITY: Iron (blast furnaces & foundry) from coal (coke) limestone and iron concentrates/pellets and steel.

EFFLUENT QUALITY: Contains suspended solids (coal, coke, iron) and coal tar compounds (ammonia, cyanide, oil and grease, phenols)
EFFLUENT TREATMENT: Clarifiers, settling basins and brill skimmers.

DISCHARGE TYPE: continuous; 7 outfalls; terminal basin discharges through a submerged diffuser.

COMMENTS:
An Amending Control Order was issued on November 4, 1986 establishing the following abatement schedule and limits:
Terminal Basin - June 30, 1988; Ammonia and cyanide limited in combination based on toxicity considerations
- Dec. 31, 1986 Solvent Extractables 1589 kg/day; susp. solids 7355 kg/day
- Jun. 30, 1989 Phenolics 22.7 kg/day
- Mar. 31, 1990 Solvent Extractables 1023 kg/day; susp. solids 5108 kg/day

In accordance with the previous Control Order, a system was in place by April 5, 1986, designed to reduce 24" Cold Mill Sewer contaminants as follows: suspended solids 15 mg/l; solvent extractables 15 mg/l, dissolved iron 1mg/l.
Occurrance Reports issued for RSP and SOLEXT exceedances. IEB to persue. Abatement includes regular dredging, placement of oil retention boom in Terminal Basins for RSP, SOLEXT and iron.

Five of sixteen trout bioassays conducted in 1987 indicated the Terminal Basin discharge to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 50.9% to 96.0%. Nine trout bioassays indicated the 60" Blast Furnace Sewer discharge to have been non-acutely lethal to the test fish. Eight of eleven trout bioassays indicated the Bar and Strip Lagoon discharge to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 2.2% to 81.0%. Eight trout bioassays indicated the East Davignon Creek discharge to have been non-acutely lethal to the test fish.
One of seven trout bioassays indicated the Fort Creek discharge to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure was 55.1%. Eleven trout bioassays indicated the Bennett Creek discharge to have been non-acutely lethal to the test fish.

IMIS NUMBER: 0000040006 SIC CODE(S): 291, 292, 298 MOE REGION: Northeast DISTRICT: Sault Ste. Marie
07/05/88

000004-00-0(6) THE ALGOMA STEEL CORPORATION LIMITED STEEL WORKS SAULT STE MARIE REPORT DATE: 17 JUN 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/002/ LAKE HURON

INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0500 0600 0700

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 466147 | 466601 | 478875 | 478875 | 507969 | 518426 | 510470 | 501833 | 498151 | 477375 | 460419 | 458600 | 485311.7 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CYANIDE FREE | ACTUAL | 118 | 157 | 99 | 78 | 59 | 33 | 26 | 48 | 35 | 66 | 88 | 127 | 77.83333 | |
| KG /DAY (CCNFUR) | GUIDELINE | | | | | | | | | | | | | | |
| CHEM. OX DEMAND | ACTUAL | 8023 | 14783 | 10676 | 14013 | | 22767 | 21186 | 13552 | 16933 | 11288 | 15162 | 18167 | 15140.90 | |
| KG /DAY (COD ) | GUIDELINE | | | | | | | | | | | | | | |
| IRON FIL.TOT. | ACTUAL | 0.3 | | 0.3 | 0.3 | 0.3 | | 0.27 | 0.27 | 0.28 | 0.3 | 1.2 | 0.28 | 1.072727 | 0 |
| KG /DAY (FEFT ) | GUIDELINE | 5.364 | | 5.364 | 5.364 | 5.364 | | 5.364 | 5.364 | 5.546 | 5.546 | 5.546 | 5.546 | 5.430181 | |
| IRON UNF.TOT. | ACTUAL | 2545.3 | 1916 | 1228.3 | 3200.3 | 2778.3 | 2214.12 | 1790.91 | 2141.39 | 3883.49 | 6057.3 | 2713.77 | 2233.78 | 2725.246 | |
| KG /DAY (FEUT ) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 3701 | 3794 | 3369 | 2853 | 3415 | 3555 | 3408 | 2604 | 2793 | 2750 | 3018 | 3078 | 3194.833 | |
| KG /DAY (NNHTUR) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8.36 | 8.37 | 8.51 | 8.40 | 8.20 | 8.50 | 8.46 | 8.61 | 8.50 | 8.39 | 8.30 | 8.39 | 8.42 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 66.43 | 66.7 | 78.23 | 167.83 | 134.23 | 124.23 | 74.53 | 49.23 | 71.23 | 83.53 | 145.03 | 172.53 | 102.8108 | |
| (PHNOL ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 40430 | 38851 | 48910 | 43177 | 42197 | 54710 | 53750 | 52671 | 43822 | 200496 | 53094 | 44684 | 59732.66 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 8998 | 9800 | 4368 | 9212 | 12362 | 10974 | 9398 | 9932 | 12733 | 10538 | 9473 | 8628 | 9701.333 | |
| KG /DAY (RSP ) | GUIDELINE | 7435.46 | 7435.46 | 7435.46 | 7435.46 | 7435.46 | 7435.46 | 7435.46 | 7435.46 | 7438.19 | 7438.19 | 7438.19 | 7438.19 | 7436.37 | 11 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 11 TIMES OUT OF 34, FOR A TOTAL COMPLIANCE RECORD OF 68% IN 1987.

000004-00-0(6) THE ALGOMA STEEL CORPORATION LIMITED STEEL WORKS SAULT STE MARIE REPORT DATE: 17 JUN 88

S U M M A R Y FOR EMIS. TYPE: 04 FINAL DISCHARGE - GROSS DATA DISCHARGED INTO: 02/002/ LAKE HURON

INCLUDES CONTROL POINTS: 0100 0200 0300 0400 0500 0600 0700

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SOLVENT EXTRACT. | ACTUAL | 1096 | 980 | 2393 | 1012 | 1474 | 1883 | 2945 | 2587 | 1781 | 1672 | 701 | 6 | 1544.166 | |
| KG /DAY (SOLEXT) | GUIDELINE | 1669.46 | 1669.46 | 1669.46 | 1669.46 | 1669.46 | 1669.46 | 1669.46 | 1669.46 | 1672.19 | 1672.19 | 1672.19 | 83.19 | 1537.953 | 5 |
| SULPHIDE UNF.REAC | ACTUAL | 45 | 39 | 34 | 34 | 34 | 37 | 37 | 38 | 35 | 33 | 34 | 34 | 36.16666 | |
| KG /DAY (SSIDUR) | GUIDELINE | | | | | | | | | | | | | | |
| SULPHATE UNF.REAC | ACTUAL | | | 991 | 991 | | 694 | 248 | | 496 | 842 | | 991 | 750.4285 | |
| KG /DAY (SSO4UR) | GUIDELINE | | | | | | | | | | | | | | |
| ZINC FIL.TOT. | ACTUAL | 25 | 20 | 17 | 18 | 16 | 8 | 28 | 19 | 3 | 4 | 30 | 18 | 17.16666 | |
| KG /DAY (ZNFT ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 5 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 58% IN 1987.

000004-00-0(6) THE ALGOMA STEEL CORPORATION LIMITED STEEL WORKS SAULT STE MARIE REPORT DATE: 17 JUN 88

CONTROL POINT: 0700 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 320948 | 321402 | 333676 | 333676 | 362770 | 373227 | 365271 | 356634 | 352770 | 331994 | 344587 | 342768 | 344976.9 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CYANIDE FREE | ACTUAL | 58 | 55 | 30 | 27 | 33 | 26 | 22 | 25 | 28 | 43 | 48 | 75 | 39.16666 | |
| KG /DAY (CCNFUR) | GUIDELINE | | | | | | | | | | | | | | |
| CHEM. OX DEMAND | ACTUAL | 8023 | 14783 | 10676 | 14013 | | 22767 | 21186 | 13552 | 16933 | 11288 | 15162 | 18167 | 15140.90 | |
| KG /DAY (COD ) | GUIDELINE | | | | | | | | | | | | | | |
| IRON UNF.TOT. | ACTUAL | 2192 | 1780 | 958 | 3003 | 2612 | 1982 | 1677 | 1726 | 3669 | 5886 | 2429 | 2053 | 2497.25 | |
| KG /DAY (FEUT ) | GUIDELINE | | | | | | | | | | | | | | |
| NH3-N TOTAL | ACTUAL | 3626 | 3696 | 3270 | 2769 | 3301 | 3471 | 3324 | 2496 | 2716 | 2656 | 2894 | 2982 | 3100.083 | |
| KG /DAY (NNHTUR) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8.3 | 8.2 | 7.9 | 8.2 | 8.1 | 8 | 8 | 8.4 | 8.1 | 8.2 | 8 | 8.1 | 8.125 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| PHENOLS UNF-REAC | ACTUAL | 66 | 66 | 78 | 167 | 134 | 124 | 73 | 49 | 71 | 83 | 145 | 171 | 102.25 | |
| KG /DAY (PHNOL ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 28240 | 30208 | 40704 | 33364 | 33734 | 45160 | 45294 | 44936 | 36688 | 193553 | 43073 | 35648 | 50883.5 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 6739 | 7391 | 3003 | 8007 | 9430 | 9331 | 8401 | 7846 | 11289 | 9296 | 8270 | 7541 | 8045.333 | |
| KG /DAY (RSP ) | REQUIREMENT | 7355 | 7355 | 7355 | 7355 | 7355 | 7355 | 7355 | 7355 | 7355 | 7355 | 7355 | 7355 | 7355 | 10 |
| SOLVENT EXTRACT. | ACTUAL | 963 | 964 | 2335 | 1001 | 1451 | 1866 | 2922 | 1783 | 1764 | 1660 | 689 | | 1581.636 | |
| KG /DAY (SOLEXT) | REQUIREMENT | 1589 | 1589 | 1589 | 1589 | 1589 | 1589 | 1589 | 1589 | 1589 | 1589 | 1589 | | 1589 | 6 |
| SULPHIDE UNF.REAC | ACTUAL | 45 | 39 | 34 | 34 | 34 | 37 | 37 | 38 | 35 | 33 | 34 | 34 | 36.16666 | |
| KG /DAY (SSIDUR) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 16 TIMES OUT OF 35, FOR A TOTAL COMPLIANCE RECORD OF 54% IN 1987.

000004-00-0(6) THE ALGOMA STEEL CORPORATION LIMITED STEEL WORKS SAULT STE MARIE

REPORT DATE: 17 JUN 88

CONTROL POINT: 0500 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 5364 | 5364 | 5364 | 5364 | 5364 | 5364 | 5364 | 5364 | 5546 | 5546 | 5546 | 5546 | 5424.666 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| IRON FIL.TOT. | ACTUAL | 0.3 | | 0.3 | 0.3 | 0.3 | 8 | 0.27 | 0.27 | 0.28 | 0.3 | 1.2 | 0.28 | 1.072727 | |
| KG /DAY (FEFT ) | REQUIREMENT | 5.364 | | 5.364 | 5.364 | 5.364 | 5.364 | 5.364 | 5.364 | 5.546 | 5.546 | 5.546 | 5.546 | 5.430181 | 1 |
| IRON UNF.TOT. | ACTUAL | 2 | 0.5 | 1 | 1.4 | 2.6 | 10.94 | 0.91 | 1.34 | 0.89 | 3.3 | 6.2 | 0.78 | 2.655 | |
| KG /DAY (FEUT ) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 8 | 7.9 | 7.9 | 8 | 8 | 8 | 8.2 | 8.1 | 8.1 | 7.8 | 7.7 | 7.9 | 7.966666 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 381 | 327 | 424 | 338 | 252 | 316 | 343 | 359 | 272 | 360 | 266 | 360 | 333.1666 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 21 | 5 | 16 | 5 | 5 | 21 | 11 | 16 | 11 | 17 | 22 | 11 | 13.41666 | |
| KG /DAY (RSP ) | REQUIREMENT | 80.46 | 80.46 | 80.46 | 80.46 | 80.46 | 80.46 | 80.46 | 80.46 | 83.19 | 83.19 | 83.19 | 83.19 | 81.37 | 0 |
| SOLVENT EXTRACT. | ACTUAL | 11 | 5 | 27 | 5 | 11 | 5 | 11 | 5 | 6 | 6 | 6 | 6 | 8.666666 | |
| KG /DAY (SOLEXT) | REQUIREMENT | 80.46 | 80.46 | 80.46 | 80.46 | 80.46 | 80.46 | 80.46 | 80.46 | 83.19 | 83.19 | 83.19 | 83.19 | 81.37 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 47, FOR A TOTAL COMPLIANCE RECORD OF 98% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1986**

COMPANY NAME & PLANT LOCATION: The Algoma Steel Corp. Ltd. (Ore Div.) Wawa

INDUSTRIAL SECTOR: Metal Mining, Smelting, Refining

RECEIVING WATERBODY: DIRECT: Magpie R.
INDIRECT: 10 km to Lake Superior

DESCRIPTION OF ACTIVITY: Sulphur bearing iron ore is roasted to make iron sinter.

EFFLUENT QUALITY: Contains suspended solids and dissolved metal sulphates.

EFFLUENT TREATMENT: Tailings pond system (3 ponds) in series.

DISCHARGE TYPE: Continuous

COMMENTS:

No formal requirements. Resolution of total suspended solids exceedances being persued with Algoma Steel.

IMIS NUMBER: 0000040105 SIC CODE: 058 MOE REGION: Northeast DISTRICT: Sault Ste. Marie

10/07/88

000004-01-0(5) THE ALGOMA STEEL CORPORATION,LIMITED WAWA REPORT DATE: 17 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| CONCENTRATION PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | | | | | | | | | | | | | | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | | | | | 0.01 | | | | | | | | 0.01 | |
| MG/L AS CU | GUIDELINE | | | | | 1.0 | | | | | | | | 1.0 | 0 |
| IRON UNF.TOT. | ACTUAL | | | | | | | 0.19 | | | | | | 0.19 | |
| MG/L AS FE | GUIDELINE | | | | | | | 1.0 | | | | | | 1.0 | 0 |
| PH | ACTUAL | 8 | 9.3 | 9.7 | 7.6 | 8.3 | 8.5 | 7.7 | 7.9 | | 7.5 | | 9.75 | 8.425 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 235 | 210 | 317 | 780 | 842 | 664 | 593 | 870 | | 771 | | | 586.8888 | |
| MG/L (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 26 | 23 | 19 | 14 | 2 | 2 | | | | 1 | | 25 | 14 | |
| MG/L (RSP ) | GUIDELINE | 15 | 15 | 15 | 15 | 15 | 15 | | | | 15 | | 15 | 15 | 4 |
| SULPHATE UNF.REAC | ACTUAL | 93 | 76 | 250 | | | 460 | | 500 | | | | 270 | 274.8333 | |
| MG/L AS SO4 | GUIDELINE | | | | | | | | | | | | | | |
| ZINC UNF.TOT. | ACTUAL | | | | 0.16 | | | | | | | | | 0.16 | |
| MG/L AS ZN | GUIDELINE | | | | 1.0 | | | | | | | | | 1.0 | 0 |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 4 TIMES OUT OF 21, FOR A TOTAL COMPLIANCE RECORD OF 81% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: The Canadian Salt Company Ltd.
& PLANT LOCATION: Windsor

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: Detroit River
INDIRECT: Lake Erie

DESCRIPTION OF ACTIVITY: Salt is mined and prepared for use.

EFFLUENT QUALITY: Contains dissolved salt (chlorides).

EFFLUENT TREATMENT:

DISCHARGE TYPE: continuous

COMMENTS:

Company in compliance with current requirements.

IMIS NUMBER: 0001040005 SIC CODE: 079 793 MOE REGION: Southwest DISTRICT: Windsor

06/16/88

000104-00-0(5) THE CANADIAN SALT COMPANY LIMITED WINDSOR REPORT DATE: 31 AUG 88

S U M M A R Y FOR EMIS. TYPE: 16 FINAL DISCHARGE - NET DATA DISCHARGED INTO: 02/003/ LAKE ERIE

INCLUDES CONTROL POINTS: 0100 0200

DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 21951 | 20357 | 20606 | 21818 | 19047 | 22672 | 22017 | 24459 | 23387 | 24656 | 24000 | 23929 | 22408.25 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| ALK TOTAL | ACTUAL | | 19 | | | 5 | 3 | 4 | | | | | | 7.75 | |
| KG /DAY (ALKT ) | GUIDELINE | | | | | | | | | | | | | | |
| CHLORIDE UNF.REAC | ACTUAL | 20434 | 14373 | 13087 | 15094 | 14301 | 15935 | 16948 | 19023 | 21118 | 18614 | 24355 | 28639 | 18493.41 | |
| KG /DAY (CLIDUR) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7.8 | 8.05 | 7.95 | 8.1 | 8.15 | 8.2 | 8.05 | 8.25 | 8.25 | 8.3 | 8.2 | 8.1 | 8.116666 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 36112 | 22474 | 24606 | 23103 | 23072 | 28309 | 28539 | 33397 | 42213 | 33287 | 42514 | 37608 | 31269.5 | |
| KG /DAY (RSF ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 63 | 0 | 35 | 0 | 143 | 70 | 60 | 79 | 395 | 144 | 108 | 61 | 96.5 | |
| KG /DAY (RSP ) | GUIDELINE | 329.26 | 305.35 | 309.09 | 327.27 | 285.705 | 340.08 | 330.25 | 366.885 | 350.805 | 369.84 | 360 | 358.935 | 336.1225 | 1 |
| RESIDUE TOTAL | ACTUAL | 36175 | 22474 | 24641 | 23103 | 23215 | 28379 | 28599 | 33476 | 42608 | 33431 | 42622 | 37669 | 31366 | |
| KG /DAY (RST ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-10.6, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 1 TIMES OUT OF 24, FOR A TOTAL COMPLIANCE RECORD OF 96% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Trent Valley Paperboard Mills
& PLANT LOCATION: A Division of Paperboard Industries Corporation
Trenton

INDUSTRIAL SECTOR: Pulp and Paper Mill

RECEIVING WATERBODY: DIRECT: Trent River
INDIRECT: Lake Ontario (Bay of Quinte)

DESCRIPTION OF ACTIVITY: Wastepaper is repulped to form coated paperboards.

EFFLUENT QUALITY: Effluent objective for suspended solids set out in Certificate of Approval #4-001-82-006 dated February 3rd, 1982 is 140 kg/day

EFFLUENT TREATMENT: "Saveall" screens and two "Krofta" clarifiers remove solids. Rejects from furnish are removed from wastewaters and sent to an approved landfill site.

DISCHARGE TYPE: Intermittent

COMMENTS:

Suspended solids effluent objective of 140 kg/day set out in Certificate of Approval still under review. Receiving water studies have not identified an effluent impact with respect to BOD. Company preparing submission in 1988 to demonstrate that exisitng effluent quality is equivalent to that from a mill employing optimized 'Best available Technology'and company has engaged a consultant to address toxicity problem.

Eight trout bioassays conducted in 1987 indicated the final treated effluent to have been acutely lethal to the test fish. Statistically, the percentage effluent required to kill 50% of the test fish by the end of the four days exposure ranged from 20.7% to 80.6%.

IMIS NUMBER: 0001750009 SIC CODE: 271 MOE REGION: Southeast DISTRICT: Kingston

10/07/88

000175-00-0(9) TRENT VALLEY PAPERBOARD MILLS GLEN MILLER REPORT DATE: 14 JUN 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 2089 | 2035 | 1857 | 1510 | 2214 | 2412 | 2067 | 2921 | 2673 | 2216 | 3082 | 3127 | 2350.25 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| BOD 5 DAY | ACTUAL | 2102 | 1825 | 1207 | 1185 | 1871 | 2781 | 1759 | 1811 | 1211 | 1760 | 1458 | 1542 | 1767 | |
| KG/DAY (BOD5) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE FILTERED | ACTUAL | 2363 | 3126 | 3032 | 2215 | 2903 | 3191 | 2751 | 3818 | 3480 | 3317 | 3544 | 3440 | 3151 | |
| KG/DAY (RSF) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 422 | 421 | 318 | 217 | 359 | 555 | 457 | 631 | 572 | 565 | 777 | 932 | 504 | |
| KG/DAY (RSP) | REQUIREMENT | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 140 | 12 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 12 TIMES OUT OF 12, FOR A TOTAL COMPLIANCE RECORD OF 0% IN 1987.

## WASTEWATER DISCHARGE SUMMARY
## 1987

COMPANY NAME & PLANT LOCATION: Washington Mills Ltd. Niagara Falls

INDUSTRIAL SECTOR: Industrial Minerals

RECEIVING WATERBODY: DIRECT: Welland R.
INDIRECT: 11 km to Lake Ontario

DESCRIPTION OF ACTIVITY: Abrasive oxides are manufactured in electric arc furnaces.

EFFLUENT QUALITY: Contains dissolved organic compounds and organic processing compounds

EFFLUENT TREATMENT: Oil water separation.

DISCHARGE TYPE: Continuous

COMMENTS:

Company in compliance in 1988. Company installed filter system to reduce solids loadings in 1987. Wastewater is furnace cooling water only.

IMIS NUMBER: 0001950005 SIC CODE: 357 MOE REGION: West Central DISTRICT: Welland

09/15/88

000195-00-0(5) WASHINGTON MILLS LIMITED NIAGARA FALLS REPORT DATE: 13 SEP 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| PH | ACTUAL | 7 | 7 | 7 | 7 | 7.1 | 7 | 7.1 | 7 | 7.1 | 7 | 7 | 7 | 7.025 | 0 |
| (PH ) | GUIDELINE | | | | | | | | | | | | | | |
| RESIDUE PARTIC. | ACTUAL | 28.5 | 29.45 | 16.15 | 21.85 | 18.05 | 26.6 | 36.1 | 29.45 | 12.35 | 17.67 | 20.33 | 7.6 | 22.00833 | |
| KG /DAY (RSP ) | GUIDELINE | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 3 |
| SOLVENT EXTRACT. | ACTUAL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| KG /DAY (SOLEXT) | GUIDELINE | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 28.5 | 0 |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 3 TIMES OUT OF 36, FOR A TOTAL COMPLIANCE RECORD OF 92% IN 1987.

**WASTEWATER DISCHARGE SUMMARY**
**1987**

COMPANY NAME: Wickes Manufacturing Co. Ltd.
& PLANT LOCATION: Bumper Division - Windsor Plant

INDUSTRIAL SECTOR: Metal, Plastic Fabricating and Finishing

RECEIVING WATERBODY: DIRECT: Little R.
INDIRECT: 3.3 km to Detroit River

DESCRIPTION OF ACTIVITY: Steel parts for the automobile industry are plated .

EFFLUENT QUALITY: Contains dissolved metals like nickel, zinc and chromium.

EFFLUENT TREATMENT: Chemical precipitation and sedimentation, reduction of water useage.

DISCHARGE TYPE: Continuous five days a week

COMMENTS:

Not in compliance with suspended solids and nickel guidelines. Certificates of Approval issued for construction of upgraded wastewater treatment facility and sewer extension from plant to nearest trunk sewer. Effluent will continue to be discharged to the Little River until the municipal pollution control plant upgrading is completed and sewer connections completed.

IMIS NUMBER: 0001060003 SIC CODE: 304 MOE REGION: Southwest DISTRICT: Windsor

06/16/88

000106-00-0(3) WICKES MANUFACTURING COMPANY LTD. WINDSOR REPORT DATE: 31 AUG 88

CONTROL POINT: 0100 DATA FOR 1987

| FLOW/LOADING PARAMETERS | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL AVERAGE | TOTAL EXCEEDANCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FLOW | ACTUAL | 707 | 974 | 852 | 639 | 652 | 938 | 748 | 716 | 471 | 412 | 530 | 680 | 693.25 | |
| M3 /DAY (FTFLOW) | GUIDELINE | | | | | | | | | | | | | | |
| CHROMIUM UNF.TOT. | ACTUAL | 0.35 | 0.44 | 0.47 | 0.4 | 0.5 | 0.53 | 0.45 | 0.44 | 0.28 | 0.24 | 0.27 | 0.42 | 0.399166 | |
| KG /DAY (CRUT ) | GUIDELINE | 0.707 | 0.974 | 0.852 | 0.639 | 0.652 | 0.938 | 0.748 | 0.716 | 0.471 | 0.412 | 0.53 | 0.68 | 0.69325 | 0 |
| CHROMIUM +6 | ACTUAL | 0.21 | 0.3 | 0.34 | 0.26 | 0.33 | 0.31 | 0.29 | 0.31 | 0.16 | 0.13 | 0.11 | 0.23 | 0.248333 | |
| KG /DAY (CR6UR ) | GUIDELINE | | | | | | | | | | | | | | |
| COPPER UNF.TOT. | ACTUAL | 0.04 | 0.08 | 0.09 | 0.084 | 0.07 | 0.22 | 0.18 | 0.14 | 0.06 | 0.03 | 0.06 | 0.12 | 0.097833 | |
| KG /DAY (CUUT ) | REQUIREMENT | 0.707 | 0.974 | 0.852 | 0.639 | 0.652 | 0.938 | 0.748 | 0.716 | 0.471 | 0.412 | 0.53 | 0.68 | 0.69325 | 0 |
| IRON UNF.TOT. | ACTUAL | 0.11 | 0.27 | 0.24 | 0.1 | 0.11 | 0.21 | 0.11 | 0.13 | 0.16 | 0.13 | 0.26 | 0.25 | 0.173333 | |
| KG /DAY (FEUT ) | REQUIREMENT | 12.019 | 16.558 | 14.484 | 10.863 | 11.084 | 15.946 | 12.716 | 12.172 | 8.007 | 7.004 | 9.01 | 11.56 | 11.78525 | 0 |
| NICKEL UNF.TOT. | ACTUAL | 0.67 | 0.95 | 0.91 | 0.62 | 0.8 | 1.09 | 0.77 | 0.57 | 0.19 | 0.41 | 0.59 | 0.96 | 0.710833 | |
| KG /DAY (NIUT ) | REQUIREMENT | 0.707 | 0.974 | 0.852 | 0.639 | 0.652 | 0.938 | 0.748 | 0.716 | 0.471 | 0.412 | 0.53 | 0.68 | 0.69325 | 6 |
| RESIDUE FILTERED | ACTUAL | 2134 | 3221 | 2782 | 1921 | 1846 | 2849 | 2232 | 2120 | 1459 | 1084 | 1556 | 1826 | 2085.833 | |
| KG /DAY (RSF ) | REQUIREMENT | - | - | - | - | - | - | - | - | - | - | - | - | | |
| RESIDUE PARTIC. | ACTUAL | 22.76 | 20.8 | 23.6 | 16.47 | 17.3 | 23.2 | 17.3 | 15.6 | 15.5 | 12.1 | 15.1 | 21.1 | 18.4025 | |
| KG /DAY (RSP ) | REQUIREMENT | 10.605 | 14.61 | 12.78 | 9.585 | 9.78 | 14.07 | 11.22 | 10.74 | 7.065 | 6.18 | 7.95 | 10.2 | 10.39875 | 12 |
| ZINC UNF.TOT. | ACTUAL | 1.28 | 1.66 | 1.6 | 0.83 | 0.12 | 0.16 | 0.15 | 0.19 | 0.16 | 0.13 | 0.21 | 0.18 | 0.555833 | |
| KG /DAY (ZNUT ) | GUIDELINE | | | | | | | | | | | | | | |

NOTE: PH LIMIT 5.5-9.5, 0* INDICATES INTAKE EXCEEDED DISCHARGE, S/C -SEE COMMENT

**********

THIS DISCHARGE EXCEEDED ITS INDIVIDUAL MONTHLY LIMITS 18 TIMES OUT OF 60, FOR A TOTAL COMPLIANCE RECORD OF 70% IN 1987.

## APPENDIX B

## ALPHABETICAL LIST OF SOURCES

| Company | Location | Basin | Page |
|---|---|---|---|
| ABITIBI-PRICE INC. | IROQUOIS FALLS | Hudson Bay | A-1 |
| ABITIBI-PRICE INC. (FT WILLIAM) | THUNDER BAY | Lake Superior | A-2 |
| ABITIBI-PRICE INC. (FINE PAPERS) | THUNDER BAY | Lake Superior | A-3 |
| AGNICO EAGLE MINES LTD. (PENN MILL) | COBALT | Ottawa River | A-4 |
| AGNICO EAGLE MINES LTD. (REFINERY) | COBALT | Ottawa River | A-5 |
| AMERICAN STANDARD - Div. of WABCO | CAMBRIDGE | Lake Erie | A-6 |
| ATLAS STEEL COMPANY LTD. | WELLAND | Lake Ontario | A-7 |
| BAKELITE THERMOSET INDUSTRIES LTD. | BELLEVILLE | Lake Ontario | A-8 |
| BEAVER WOOD FIBRE COMPANY LTD. | THOROLD | Lake Ontario | A-9 |
| B.F.GOODRICH | NIAGARA FALLS | Lake Ontario | A-10 |
| BLACKSTONE INDUSTRIAL PROD.'S LTD. | STRATFORD | Lake Erie | A-11 |
| BOISE CASCADE CANADA LTD. | FORT FRANCES | Hudson Bay | A-12 |
| BOISE CASCADE CANADA LTD. | KENORA | Hudson Bay | A-13 |
| BORG-WARNER CHEMICALS | COBOURG | Lake Ontario | A-14 |
| CAMPBELL SOUP COMPANY LTD. | ST. MARYS | Lake Erie | A-15 |
| CANADIAN CANNERS LTD. | ST. DAVIDS | Lake Ontario | A-16 |
| CANADIAN OXY-DUREZ | FORT ERIE | Lake Ontario | A-17 |
| CASCO INC. | CARDINAL | St. Lawrence R. | A-18 |
| CELANESE CANADA INC. | TWP. OF ERNESTOWN | Lake Ontario | A-19 |
| CHAMPLAIN INDUSTRIES LTD. | TARA | Lake Huron | A-20 |
| CHESAPEAKE AND OHIO RAILWAY CO. | ST. THOMAS | Lake Erie | A-21 |
| C-I-L LTD. | CORNWALL | St. Lawrence R. | A-22 |
| C-I-L LTD. | COURTRIGHT | Lake Erie | A-23 |
| CORBY DISTILLERIES LTD. | CORBYVILLE | Lake Ontario | A-24 |
| COURTAULDS LTD. & BCL LTD. | CORNWALL | St. Lawrence R. | A-25 |
| CYANAMID CANADA INC. | NIAGARA FALLS | Lake Ontario | A-26 |
| CYANAMID CANADA INC. (WELLAND PLANT) | NIAGARA FALLS | Lake Ontario | A-27 |

## ALPHABETICAL LIST OF SOURCES


| Company | Location | Basin | Page |
|---|---|---|---|
| DENISON MINES LTD. | ELLIOT LAKE | Lake Huron | A-28 |
| DENISON MINES LTD. (Stanrock) | ELLIOT LAKE | Lake Huron | A-29 |
| DENISON MINES LTD. (Williams Lake) | ELLIOT LAKE | Lake Huron | A-30 |
| DETOUR LAKE MINE | TIMMINS | Hudson Bay | A-31 |
| DICKENSON-SULLIVAN JOINT VENTURE | BALMERTON | Hudson Bay | A-32 |
| DOFASCO INC. | HAMILTON | Lake Ontario | A-33 |
| DOFASCO INC. - ADAMS MINE | KIRKLAND LAKE | Ottawa River | A-34 |
| DOMTAR CHEMICALS LTD. | GODERICH | Lake Huron | A-35 |
| DOMTAR CHEMICAL GROUP | ORILLIA | Lake Huron | A-36 |
| DOMTAR CONSTRUCTION MATERIALS LTD. | THOROLD | Lake Ontario | A-37 |
| DOMTAR FINE PAPERS | CORNWALL | St. Lawrence R. | A-38 |
| DOMTAR FINE PAPERS | ST.CATHARINES | Lake Ontario | A-39 |
| DOMTAR PACKAGING LTD. | RED ROCK | Lake Superior | A-40 |
| DOMTAR PACKAGING | TRENTON | Lake Ontario | A-41 |
| DOMTAR WOOD PRESERVING | TRENTON | Lake Ontario | A-42 |
| DOW CHEMICAL OF CANADA LTD. | SARNIA | Lake Erie | A-43 |
| DUPONT CANADA INC. | CORUNNA | Lake Erie | A-44 |
| DUPONT CANADA LTD. | KINGSTON TOWNSHIP | Lake Ontario | A-45 |
| DUPONT CANADA INC. | MAITLAND | St. Lawrence R. | A-46 |
| E. B. EDDY FOREST PRODUCTS LTD. | ESPANOLA | Lake Huron | A-47 |
| E. B. EDDY FOREST PRODUCTS LTD. | OTTAWA | Ottawa River | A-48 |
| ELDORADO RESOURCES LTD. | BLIND RIVER | Lake Huron | A-49 |
| ELDORADO NUCLEAR ltd. | PORT GRANBY | Lake Ontario | A-50 |
| ELDORADO NUCLEAR LTD. | PORT HOPE | Lake Ontario | A-51 |
| ELDORADO NUCLEAR LTD. | WELCOME | Lake Ontario | A-52 |
| ESSO CHEMICALS | SARNIA | Lake Erie | A-53 |
| ESSO PETROLEUM CANADA | SARNIA | Lake Erie | A-54 |

## ALPHABETICAL LIST OF SOURCES


| Company | Location | Basin | Page |
|---|---|---|---|
| ETHYL CANADA INC. | CORUNNA | Lake Erie | A-55 |
| EXOLON | THOROLD | Lake Ontario | A-56 |
| EXPLOSIVE TECHNOLOGIES INTERNATIONAL INC. | NORTH BAY | Lake Huron | A-57 |
| FALCONBRIDGE LTD. | FALCONBRIDGE | Lake Huron | A-58 |
| FALCONBRIDGE LTD., KIDD CREEK MINE (Met. Site) | TIMMINS | Hudson Bay | A-59 |
| FALCONBRIDGE LTD., KIDD CREEK MINE (Mine Site) | TIMMINS | Hudson Bay | A-60 |
| FALCONBRIDGE LTD., LOCKERBY MINE | ONAPING | Lake Huron | A-61 |
| FALCONBRIDGE LTD., MOOSE LK WWTS | ONAPING FALLS | Lake Huron | A-62 |
| FALCONBRIDGE LTD., ONAPING MINE | ONAPING FALLS | Lake Huron | A-63 |
| FIBERGLAS CANADA LTD. | SARNIA | Lake Erie | A-64 |
| FLEET MFG. COMPANY LTD. | FORT ERIE | Lake Ontario | A-65 |
| FORD MOTOR COMPANY | NIAGARAFALLS | Lake Ontario | A-66 |
| FORD MOTOR COMPANY | OAKVILLE | Lake Ontario | A-67 |
| FORD MOTOR COMPANY | ST. THOMAS | Lake Erie | A-68 |
| FORD MOTOR COMPANY | WINDSOR | Lake Erie | A-69 |
| FRASER INCORPORATED | THOROLD | Lake Ontario | A-70 |
| GAY LEE FOODS COOPERATIVE LTD. | TEESWATER | Lake Huron | A-71 |
| GENERAL CHEMICAL CANADA LTD. | AMHERSTBURG | Lake Erie | A-72 |
| GENERAL MOTORS OF CANADA LTD. | ST. CATHARINES | Lake Ontario | A-73 |
| GIANT YELLOWKNIFE MINES LTD. - Pamour Mine | TIMMINS | Hudson Bay | A-74 |
| GIANT YELLOWKNIFE MINES LTD. - Schumacher Mine | TIMMINS | Hudson Bay | A-75 |
| GOLDEN SHIELD RESOURCES - KERR DIVISION. | VIRGINIATOWN | Ottawa River | A-76 |
| GREAT LAKES FOREST PRODUCTS | DRYDEN | Hudson Bay | A-77 |
| GREAT LAKES FOREST PRODUCTS | THUNDER BAY | Lake Superior | A-78 |
| G. W. MARTIN FOREST PRODUCTS | ALBAN | Lake Huron | A-79 |
| H.J.HEINZ COMPANY OF CANADA LTD. | LEAMINGTON | Lake Erie | A-80 |
| INCO LTD. (Copper Cliff Creek Nickel Refinery) | COPPER CLIFF | Lake Huron | A-81 |
| INCO LTD. (Copper Cliff Creek W.W.T.) | COPPER CLIFF | Lake Huron | A-82 |
| INCO LTD. (Crean Hill Mine) | COPPER CLIFF | Lake Huron | A-83 |
| INCO LTD. (Frood Stobie) | COPPER CLIFF | Lake Huron | A-84 |
| INCO LTD. (Garson Mine) | COPPER CLIFF | Lake Huron | A-85 |
| INCO LTD. (Levack Tailings Area) | COPPER CLIFF | Lake Huron | A-86 |
| INCO LTD. (Nolin Creek) | COPPER CLIFF | Lake Huron | A-87 |

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| Company | Location | Basin | Page |
|---|---|---|---|
| INCO METALS COMPANY | PORT COLBORNE | Lake Erie | A-88 |
| INT.'L MINERALS AND CHEMICAL CORP. | DUNNVILLE | Lake Erie | A-89 |
| JAMES RIVER MARATHON LTD. | MARATHON | Lake Superior | A-90 |
| J.M.SCHNEIDER INC. | AYR | Lake Erie | A-91 |
| KIMBERLY-CLARK OF CANADA LTD. | HUNTSVILLE | Lake Huron | A-92 |
| KIMBERLY CLARK OF CANADA LTD. | ST. CATHARINES | Lake Ontario | A-93 |
| KIMBERLY-CLARK OF CANADA LTD. | TERRACE BAY | Lake Superior | A-94 |
| KRAFT LTD. | INGLESIDE | St. Lawrence R. | A-95 |
| LAC MINERALS (MACASSA DIVISION) | KIRKLAND LAKE | Ottawa River | A-96 |
| MACMILLAN BLOEDEL LTD. | STURGEON FALLS | Lake Huron | A-97 |
| MALETTE PULP AND PAPER LTD. | SMOOTH ROCKFALLS | Hudson Bay | A-98 |
| MATTABI MINES LTD. | DISTRICT OF KENORA | Hudson Bay | A-99 |
| McBEAN MINES LTD. | DOBIE | Ottawa River | A-100 |
| MITSUBISHI ELECTRONICS INC. | MIDLAND | Lake Huron | A-101 |
| NESTLE ENTERPRISES LTD. | CHESTERVILLE | Ottawa River | A-102 |
| NITROCHEM | MAITLAND | St. Lawrence R. | A-103 |
| NORANDA HEMLO INC. | MARATHON | Lake Superior | A-104 |
| NORANDA INC. LYON LAKE DIV. | DISTRICT OF THUNDER BAY | Lake Superior | A-105 |
| NORANDA MINES LIMITED GECO DIV. | MANITOUWADGE | Lake Superior | A-106 |
| NORTHERN WOOD PRESERVERS | THUNDER BAY | Lake Superior | A-107 |
| NORTON COMPANY | NIAGARA FALLS | Lake Ontario | A-108 |
| NOVACOR LTD. | SARNIA | Lake Erie | A-109 |
| OGILVIE MILLS LTD. | THUNDER BAY | Lake Superior | A-110 |
| OMSTEAD FOODS LTD. | WHEATLEY | Lake Erie | A-111 |
| ONTARIO HYDRO T.G.S. LAMBTON | COURTRIGHT | Lake Erie | A-112 |
| ONTARIO HYDRO N.P.G.D . | PICKERING | Lake Ontario | A-113 |
| ONTARIO HYDRO (Ash Lagoon) | NANTICOKE | Lake Erie | A-114 |
| ONTARIO HYDRO T.G.S. | NANTICOKE | Lake Erie | A-115 |
| ONTARIO HYDRO (DOMESTIC STP) | TIVERTON | Lake Huron | A-116 |
| ONTARIO HYDRO (BRUCE GEN. STN.) | TIVERTON | Lake Huron | A-117 |
| ONTARIO HYDRO (HEAVY WATER PLANT) | TIVERTON | Lake Huron | A-118 |

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| ONTARIO HYDRO T.G.S. LAKEVIEW | TORONTO | Lake Ontario | A-120 |
| PETRO-CANADA PRODUCTS CO. (CLARKSON) | MISSISSAUGA | Lake Ontario | A-121 |
| PETRO-CANADA PRODUCTS INC. | OAKVILLE | Lake Ontario | A-122 |
| PETROSAR LTD. | CORUNNA | Lake Erie | A-123 |
| PLACER - DOME LTD. | BALMERTON | Hudson Bay | A-124 |
| PLACER - DOME LTD. | SOUTH PORCUPINE | Hudson Bay | A-125 |
| POLYSAR LTD. | SARNIA | Lake Erie | A-126 |
| PROVINCIAL MILLS LTD. (ABITIBI-PRICE INC.) | THUNDER BAY | Lake Superior | A-127 |
| QUEBEC AND ONTARIO PAPER COMPANY LTD. | THOROLD | Lake Ontario | A-128 |
| REICHHOLD LTD. | THUNDER BAY | Lake Superior | A-129 |
| REXWOOD PRODUCTS LTD. | NEW LISKEARD | Ottawa River | A-130 |
| RIO ALGOM LTD. (Panel Mill) | ELLIOT LAKE | Lake Huron | A-131 |
| RIO ALGOM LTD. (Quirke Mill) | ELLIOT LAKE | Lake Huron | A-132 |
| RIO ALGOM LTD. (Stanleigh Mill) | ELLIOT LAKE | Lake Huron | A-133 |
| ROTHSAY LTD. | ROTHSAY | Lake Erie | A-134 |
| SHELL CANADA LTD. | CORUNNA | Lake Erie | A-135 |
| SHERMAN MINE | TEMAGAMI | Lake Huron | A-136 |
| SOHIO | NIAGARA FALLS | Lake Ontario | A-137 |
| SPRUCE FALLS POWER & PAPER CO. LTD. | KAPUSKASING | Hudson Bay | A-138 |
| STANLEY HARDWARE | NEW HAMBURG | Lake Erie | A-139 |
| ST. MARYS PAPER INC. | SAULT STE MARIE | Lake Huron | A-140 |
| STEETLEY TALC LTD. | TIMMINS | Hudson Bay | A-141 |
| STELCO INC. | HAMILTON | Lake Ontario | A-142 |
| STELCO INC., LAKE ERIE WORKS | NANTICOKE | Lake Erie | A-143 |
| STELCO PAGE HERSEY | WELLAND | Lake Ontario | A-144 |
| STELCO WELLAND TUBES | WELLAND | Lake Ontario | A-145 |
| STRATHCONA PAPER COMPANY | TWP OF CAMDEN EAST | Lake Ontario | A-146 |
| SUNCOR SUNOCO GROUP | SARNIA | Lake Erie | A-147 |
| TECK-CORUNA INC. | MARATHON | Lake Superior | A-148 |

## ALPHABETICAL LIST OF SOURCES


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|---|---|---|---|
| TEND-R-FRESH POULTRY LTD. | PETERSBURG | Lake Erie | A-149 |
| TEXACO CANADA INC. | PORT CREDIT | Lake Ontario | A-150 |
| TEXACO CANADA INC., NANTICOKE REFINERY | JARVIS | Lake Erie | A-151 |
| THE ALGOMA STEEL CORPORATION LTD. | SAULT STE. MARIE | Lake Huron | A-152 |
| THE ALGOMA STEEL CORP. LTD. (ORE DIVISION) | WAWA | Lake Superior | A-153 |
| THE CANADIAN SALT COMPANY LTD. | WINDSOR | Lake Erie | A-154 |
| TRENT VALLEY PAPERBOARD MILLS | GLEN MILLER | Lake Ontario | A-155 |
| WASHINGTON MILLS LTD. | NIAGARA FALLS | Lake Ontario | A-156 |
| WICKES MANUFACTURING CO. LTD. | WINDSOR | Lake Erie | A-157 |

## APPENDIX C

## LIST OF SOURCES BY MAJOR WATERSHED BASIN


| HUDSON BAY | LOCATION | PAGE |
|---|---|---|
| ABITIBI-PRICE INC. | IROQUOIS FALLS | A-1 |
| BOISE CASCADE CANADA LTD. | FORT FRANCES | A-12 |
| BOISE CASCADE CANADA LTD. | KENORA | A-13 |
| DETOUR LAKE MINE | TIMMINS | A-31 |
| DICKENSON-SULLIVAN JOINT VENTURE | BALMERTON | A-32 |
| FALCONBRIDGE LTD., KIDD CREEK MINE (Met Site) | TIMMINS | A-59 |
| FALCONBRIDGE LTD., KIDD CREEK MINE (Mine Site) | TIMMINS | A-60 |
| GIANT YELLOWKNIFE MINES LTD. - Pamour Mine | TIMMINS | A-74 |
| GIANT YELLOWKNIFE MINES LTD. - Schumacher | TIMMINS | A-75 |
| GREAT LAKES FOREST PRODUCTS | DRYDEN | A-77 |
| MALETTE PULP AND PAPER LTD. | SMOOTH ROCK FALLS | A-98 |
| MATTABI MINES LTD. | DISTRICT OF KENORA | A-99 |
| PLACER - DOME LTD. (Campbell Red Lake Mine) | BALMERTON | A-124 |
| PLACER - DOME LTD. | SOUTH PORCUPINE | A-125 |
| SPRUCE FALLS POWER AND PAPER CO. LTD. | KAPUSKASING | A-138 |
| STEETLEY TALC INC. | TIMMINS | A-141 |

| LAKE SUPERIOR | | |
|---|---|---|
| ABITIBI-PRICE INC. (FT. WILLIAM) | THUNDER BAY | A-2 |
| PROVINCIAL MILL (ABITIBI-PRICE INC.) | THUNDER BAY | A-127 |
| ABITIBI-PRICE INC. (FINE PAPERS) | THUNDER BAY | A-3 |
| DOMTAR PACKAGING LTD. | RED ROCK | A-40 |
| GREAT LAKES FOREST PRODUCTS | THUNDER BAY | A-78 |
| JAMES RIVER MARATHON LTD. | MARATHON | A-90 |
| KIMBERLY-CLARK OF CANADA LTD. | TERRACE BAY | A-94 |
| NORANDA HEMLO INC. | MARATHON | A-104 |
| NORANDA INC. LYON LAKE DIV. | DISTRICT OF THUNDER BAY | A-105 |
| NORANDA GOLD MINES LTD., GECO DIV. | MANITOUWADGE | A-106 |
| NORTHERN WOOD PRESERVERS | THUNDER BAY | A-107 |
| OGILVIE MILLS LTD. | THUNDER BAY | A-110 |

## LIST OF SOURCES BY MAJOR WATERSHED BASIN


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| ONTARIO HYDRO T.G.S. | THUNDER BAY | A-119 |
| REICHHOLD LTD | THUNDER BAY | A-129 |
| TECK - CORUNA INC | MARATHON | A-148 |
| THE ALGOMA STEEL CORPORATION LTD. (ORE DIVISION) | WAWA | A-153 |
| **LAKE HURON** ... (includes St. Marys River) | | |
| CHAMPLAIN INDUSTRIES LTD. | TARA | A-20 |
| DENISON MINES LTD. | ELLIOT LAKE | A-28 |
| DENISON MINES LTD. (Stanrock) | ELLIOT LAKE | A-29 |
| DENISON MINES LTD. (Williams Lake) | ELLIOT LAKE | A-30 |
| DOMTAR CHEMICALS GROUP | GODERICH | A-35 |
| DOMTAR CHEMICALS GROUP | ORILLIA | A-36 |
| E.B.EDDY FOREST PRODUCTS LTD. | ESPANOLA | A-47 |
| ELDORADO RESOURCES LTD. | BLIND RIVER | A-49 |
| EXPLOSIVE TECHNOLOGIES INTERNATIONAL LTD. | NORTH BAY | A-57 |
| FALCONBRIDGE LTD. | FALCONBRIDGE | A-58 |
| FALCONBRIDGE LTD. LOCKERBY MINE | ONAPING | A-61 |
| FALCONBRIDGE LTD., MOOSE L. WWTS | ONAPING FALLS | A-62 |
| FALCONBRIDGE LTD., ONAPING MINE | ONAPING FALLS | A-63 |
| GAY LEE FOODS LTD. | TEESWATER | A-71 |
| G. W. MARTIN FOREST PRODUCTS | ALBAN | A-79 |
| INCO LTD. (Copper Cliff Nickel Ref.) | COPPER CLIFF | A-81 |
| INCO LTD. (Copper Cliff Creek W.W.T.) | COPPER CLIFF | A-82 |
| INCO LTD. (Crean Hill Mine) | COPPER CLIFF | A-83 |
| INCO LTD. (Frood Stobie) | COPPER CLIFF | A-84 |
| INCO LTD. (Garson Mine) | COPPER CLIFF | A-85 |
| INCO LTD. (Levack Tailings Area) | COPPER CLIFF | A-86 |
| INCO LTD. (Nolin Creek W.W.T.) | COPPER CLIFF | A-87 |
| KIMBERLY CLARK OF CANADA | HUNTSVILLE | A-93 |
| MACMILLAN BLOEDEL LTD. | STURGEON FALLS | A-97 |
| MITSUBISHI CANADA LTD | MIDLAND | A-101 |
| ONTARIO HYDRO (Domestic STP) | TIVERTON | A-116 |
| ONTARIO HYDRO (BRUCE GEN. STN.) | TIVERTON | A-117 |
| ONTARIO HYDRO (HEAVY WATER PLANT) | TIVERTON | A-118 |
| RIO ALGOM LTD. (Panel Mill) | ELLIOT LAKE | A-131 |

## LIST OF SOURCES BY MAJOR WATERSHED BASIN


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|---|---|---|
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| SHERMAN MINE | TEMAGAMI | A-134 |
| ST. MARYS PAPER INC. | SAULT STE. MARIE | A-140 |
| THE ALGOMA STEEL CORPORATION LTD. | SAULT STE. MARIE | A-152 |
| LAKE ERIE ... (includes St. Clair River, Lake St. Clair, Detroit River) | | |
| AMERICAN STANDARD | CAMBRIDGE | A-6 |
| BLACKSTONE INDUSTRIAL PRODUCTS LTD. | STRATFORD | A-11 |
| CAMBELL SOUP COMPANY LTD. | ST. MARYS | A-15 |
| CANADIAN INDUSTRIES LTD. | COURTRIGHT | A-23 |
| CHESAPEAKE AND OHIO RAILWAY CO. | ST. THOMAS | A-21 |
| DOW CHEMICAL OF CANADA LTD. | SARNIA | A-43 |
| DUPONT CANADA INC. | CORUNNA | A-44 |
| ESSO CHEMICALS | SARNIA | A-53 |
| ESSO PETROLEUM CANADA | SARNIA | A-54 |
| ETHYL CANADA INC. | CORUNNA | A-55 |
| FIBERGLAS CANADA LTD. | SARNIA | A-64 |
| FORD MOTOR COMPANY | ST. THOMAS | A-68 |
| FORD MOTOR COMPANY | WINDSOR | A-69 |
| GENERAL CHEMICAL CANADA LTD. | AMHERSTBURG | A-72 |
| H.J.HEINZ COMPANY OF CANADA LTD. | LEAMINGTON | A-80 |
| INCO METALS COMPANY | PORT COLBORNE | A-88 |
| INT.'L MINERALS AND CHEMICAL CORP. | DUNNVILLE | A-89 |
| J. M. SCHNEIDER INC. | AYR | A-91 |
| NOVACOR LTD. | CORUNNA | A-109 |
| OMSTEAD FOODS LTD. | WHEATLEY | A-111 |
| ONTARIO HYDRO TGS - LAMBTON | COURTRIGHT | A-112 |
| ONTARIO HYDRO (Ash Lagoon) | NANTICOKE | A-114 |
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| PETROSAR LTD | SARNIA | A-123 |

## LIST OF SOURCES BY MAJOR WATERSHED BASIN


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| ROTHSAY LTD | ROTHSAY | A-134 |
| SHELL CANADA LTD | CORUNNA | A-135 |
| STANLEY HARDWARE | NEW HAMBURG | A-139 |
| STELCO INC, LAKE ERIE WORKS | NANTICOKE | A-143 |
| SUNCOR SUNOCO GROUP | SARNIA | A-147 |
| TEND-R-FRESH POULTRY LTD. | PETERSBURG | A-149 |
| TEXACO CANADA INC., NANTICOKE REFINERY | JARVIS | A-151 |
| THE CANADIAN SALT COMPANY LTD. | WINDSOR | A-154 |
| WICKES MANUFACTURING CO. LTD. | WINDSOR | A-157 |
| LAKE ONTARIO ... (includes Niagara River) | | |
| ATLAS STEEL COMPANY LTD. | WELLAND | A-7 |
| BAKELITE THERMOSET INDUSTRIES LTD. | BELLEVILLE | A-8 |
| BEAVER WOOD FIBRE COMPANY LTD. | THOROLD | A-9 |
| B.F.GOODRICH | NIAGARA FALLS | A-10 |
| BORG-WARNER CHEMICALS | COBOURG | A-14 |
| CANADIAN CANNERS LTD. | ST. DAVIDS | A-16 |
| CANADIAN OXY-DUREZ | FORT ERIE | A-17 |
| CELANESE CANADA INC. | TWP. OF ERNESTOWN | A-19 |
| CORBY DISTILLERIES | CORBYVILLE | A-24 |
| CYANAMID CANADA INC. | NIAGARA FALLS | A-26 |
| CYANAMID CANADA INC.(WELLAND PLANT) | NIAGARA FALLS | A-27 |
| DOFASCO INC. | HAMILTON | A-33 |
| DOMTAR CONSTRUCTION MATERIALS LTD. | THOROLD | A-37 |
| DOMTAR FINE PAPERS | ST. CATHARINES | A-39 |
| DOMTAR PACKAGING | TRENTON | A-41 |
| DOMTAR WOOD PRESERVING | TRENTON | A-42 |
| DUPONT CANADA LTD. | KINGSTON TOWNSHIP | A-45 |
| ELDORADO NUCLEAR | PORT GRANBY | A-50 |
| ELDORADO NUCLEAR LTD. | PORT HOPE | A-51 |

## LIST OF SOURCES BY MAJOR WATERSHED BASIN


| LAKE ONTARIO (CONT.) | LOCATION | PAGE |
|---|---|---|
| ELDORADO NUCLEAR LTD. | WELCOME | A-52 |
| EXOLON COMPANY OF CANADA LTD. | THOROLD | A-56 |
| FLEET MANUFACTURING COMPANY LTD. | FORT ERIE | A-65 |
| FORD MOTOR COMPANY | NIAGARA FALLS | A-66 |
| FORD MOTOR COMPANY | OAKVILLE | A-67 |
| FRASER INCORPORATED | THOROLD | A-70 |
| GENERAL MOTORS OF CANADA LTD. | ST CATHARINES | A-73 |
| KIMBERLY CLARK OF CANADA LTD. | ST. CATHARINES | A-94 |
| NORTON COMPANY | NIAGARA FALLS | A-108 |
| ONTARIO HYDRO T.G.S. LAKEVIEW | TORONTO | A-120 |
| ONTARIO HYDRO N.P.G.D. | PICKERING | A-113 |
| PETRO CANADA PRODUCTS INC. (CLARKSON) | MISSISSAUGA | A-121 |
| PETRO CANADA PRODUCTS INC. | OAKVILLE | A-122 |
| QUEBEC AND ONTARIO PAPER COMPANY LTD. | THOROLD | A-128 |
| SOHIO | NIAGARA FALLS | A-137 |
| STELCO INC. | HAMILTON | A-142 |
| STELCO PAGE HERSEY | WELLAND | A-144 |
| STELCO WELLAND TUBES | WELLAND | A-145 |
| STRATHCONA PAPER COMPANY | TWP. OF CAMDEN EAST | A-146 |
| TEXACO CANADA INC. | MISSISSAUGA | A-150 |
| TRENT VALLEY PAPERBOARD MILLS | TRENTON | A-155 |
| WASHINGTON MILLS LTD. | NIAGARA FALLS | A-156 |
| **ST. LAWRENCE RIVER** | | |
| CASCO INC. | CARDINAL | A-18 |
| COURTAULDS Ltd. and BCL Ltd. | CORNWALL | A-25 |
| CIL LTD. | CORNWALL | A-22 |
| DOMTAR FINE PAPERS | CORNWALL | A-38 |
| DUPONT CANADA INC. | MAITLAND | A-46 |
| KRAFT LTD. | INGLESIDE | A-95 |
| NITROCHEM | MAITLAND | A-103 |

## LIST OF SOURCES BY MAJOR WATERSHED BASIN

OTTAWA RIVER

| | | |
|---|---|---|
| AGNICO EAGLE RIVER MINES LTD. (Penn Mill) | COBALT | A-4 |
| AGNICO EAGLE MINES LTD. (Refinery) | COBALT | A-5 |
| DOFASCO INC. (Adams Mine) | KIRKLAND LAKE | A-34 |
| E.B. EDDY FOREST PRODUCTS LTD. | OTTAWA | A-47 |
| GOLDEN SHEILD - KERR DIVISION LTD. | VIRGINIATOWN | A-76 |
| LAC MINERALS (MACASSA DIVISION) | KIRKLAND LAKE | A-96 |
| McBEAN MINES | DOBIE | A-100 |
| NESTLE ENTERPRISES LTD. | CHESTERVILLE | A-102 |
| REXWOOD PRODUCTS LTD. | NEW LISKEARD | A-130 |

## APPENDIX D
## SOURCES IN MISA INDUSTRIAL SECTORS

### 0100 PETROLEUM REFINING

| | |
|---|---|
| Esso Petroleum Canada, a Division of Imperial Oil Ltd. | Sarnia |
| Petro-Canada Inc., (Clarkson) | Mississauga |
| Petro-Canada Inc., (Trafalgar) | Oakville |
| Petrosar Limited. | Sarnia |
| Suncor Inc., Sunoco Division | Sarnia |
| Shell Canada Products Ltd. | Corunna |
| Texaco Inc, (Nanticoke Refinery) | Jarvis |
| Texaco Inc, (Port Credit Refinery) | Mississauga |

### 0200 ORGANIC CHEMICAL MANUFACTURING

| | |
|---|---|
| BTL Industries Inc. | Belleville |
| Courtaulds Films Canada, A Division of International Paints (Canada) Ltd. | Cornwall |
| B.F Goodrich Canada Inc. | Niagara Falls |
| Borg-Warner (Canada) Limited | Cobourg |
| Canadian Oxy Chemicals Ltd. | Fort Erie |
| Celanese Canada Inc. | Kingston |
| Cornwall Chemicals Limited | Cornwall * |
| Courtaulds Fibres Canada, A Division of Courtaulds Fibres Inc. | Cornwall |
| Domtar Inc., Longford Mills | Longford Mills |
| Dow Chemical Canada Inc. | Sarnia |
| Du Pont Canada Inc. | Corunna |
| Du Pont Canada Inc. | Kingston |
| Du Pont Canada Inc. | Maitland |
| Esso Chemical Canada, a Division of Imperial Oil Ltd. | Sarnia |
| Ethyl Canada Inc. | Corunna |
| Novacor Chemicals Ltd., (formerly called Union Carbide Canada Ltd.) | Mooretown |
| Polysar Limited. | Sarnia |
| Rohm and Haas Canada Inc. | Morrisburg* |
| Uniroyal Chemical Ltd. | Elmira* |

* to be included in future reports

**0300 PULP AND PAPER**

| | |
|---|---|
| Abitibi-Price Inc. | Iroquois Falls |
| Abitibi-Price Inc., (Ft. William Div.) | Thunder Bay |
| Abitibi-Price Inc., (Provincial Papers Div.) | Thunder Bay |
| Abitibi-Price Inc., (Thunder Bay Div.) | Thunder Bay |
| Beaver Wood Fibre Company | Thorold |
| Boise Cascade Ltd. | Fort Frances |
| Boise Cascade Ltd. | Kenora |
| Domtar Construction Materials Ltd. | Thorold |
| Domtar Fine Papers Ltd. | Cornwall |
| Domtar Fine Papers Ltd. | St. Catharines |
| Domtar Packaging Ltd. | Trenton |
| Domtar Packaging Ltd. | Red Rock |
| E.B. Eddy Forest Products Ltd. | Espanola |
| E.B. Eddy Forest Products Ltd. | Ottawa |
| Fraser Inc. | Thorold |
| Great Lakes Forest Products Ltd. | Thunder Bay |
| Great Lakes Forest Products Ltd. | Dryden |
| James River Marathon Ltd. | Marathon |
| Kimberly-Clark of Canada Ltd. | St. Catharines |
| Kimberly-Clark of Canada Ltd. | Huntsville |
| Kimberly-Clark of Canada Ltd. | Terrace Bay |
| MacMillan Bloedel Ltd. | Sturgeon Falls |
| Malette Kraft Pulp and Paper Inc. | Smooth Rock Falls |
| Spruce Falls Power and Paper Co. Ltd. | Kapuskasing |
| St. Mary's Paper Inc. | Sault Ste. Marie |
| Stratcona Paper Company | Camden East Twp. |
| Quebec-Ontario Paper Company Inc. | Thorold |
| Trent Valley Paperboard Mills | Trenton |

**0400 METAL MINING AND REFINING**

| | |
|---|---|
| Agnico Eagle Mines Ltd., (Silver Division) | Cobalt |
| Agnico Eagle Mines Ltd., (Refinery) | Cobalt |
| Agnico-Eagle Mines Ltd. (Leroy Project) | Gowganda * |
| Agnico-Eagle Mines Ltd. (Beaver-Timiskaming Mine) | Cobalt * |
| Agnico-Eagle Mines Ltd. (Langis MIne) | Casey Twp. * |
| Agnico-Eagle Mines Ltd. (Silver Centry Decline Project)) | Coleman Twp. * |
| American Barrick Resources Corp. | Harker Twp. * |
| Ateba Mines Inc. | Geraldton * |
| Belmoral Mines Ltd. | Timmins * |
| Canamax Resources Inc. | Finan Twp. ,Goudreau * |
| Canamax Resources Inc. | German Twp. * |
| Canamax Resources Inc. | Timmins * |
| Consolidated Professor Mines Ltd. | Glass Twp., District of Kenora* |
| Citadel Gold Mines Inc. | McMurray Twp. * |
| Denison Mines Ltd., (Stollery Lake) | Elliot Lake |
| Denison Mines Ltd., (Stanrock) | Elliot Lake |
| Denison Mines Ltd., (Williams Lake) | Elliot Lake |
| Detour Lake Mines Ltd. | Timmins |
| Dicken-Sullivan Joint Venture, (Arthur W. White Mine) | Township Golden |
| Diepdaume Mines Ltd. | Timmins * |
| Domtar Chemicals Ltd. | Goderich |
| Eldorado Nuclear Ltd. | Port Hope |
| Eldorado Nuclear Ltd. | Port Granby |
| Eldorado Nuclear Ltd. | Welcome |
| Eldorado Resources Ltd. | Blind River |
| Emerald Lake Resources | Afton Twp. * |
| Falconbridge Ltd. | Falconbridge |
| Falconbridge Ltd.,Kidd Creek Mines Ltd., (Metalurgical Site) | Timmins |
| Falconbridge Ltd.,Kidd Creek Mines Ltd., (Mine Site) | Timmins |
| Falconbridge Ltd., (Moose Lake) | Falconbridge |
| Falconbridge Ltd., (Onaping Mine) | Onaping Falls |
| Getty Resources | Timmins * |
| Giant Yellowknife Mines Ltd. | Hislop Twp. * |
| Golden Giant Mine | Hemlo * |

* to be included in future reports

**0400 METAL MINING AND REFINING** continued ....

| | |
|---|---|
| Golden Shield Resources (Kerr Addison Mine) | Virginiatown |
| Hellens-Eplett Mining Inc. | Cobalt * |
| Inco Ltd., (Copper Cliff Creek Nickel Ref.) | Sudbury |
| Inco Ltd., (Copper Cliff Creek Wastewater Tr.) | Sudbury |
| Inco Ltd., (Crean Hill) | Sudbury |
| Inco Ltd., (Frood Stobie Emerg. Tailings Area) | Sudbury |
| Inco Ltd., (Garson Mine) | Sudbury |
| Inco Ltd., (Levack Tailings Area) | Sudbury |
| Inco Ltd., (Nolin Creek) | Sudbury |
| Inco Ltd., (Whistle) | Sudbury* |
| Inco Metals Ltd., (not active in 1987) | Shebandowan |
| Inco Metals Ltd. | Port Colborne |
| Inco Limited | Thunder Bay * |
| Kidd Creek Mines Ltd. | Kidd Twp.* |
| Kidd Creek Mines Ltd. | Hoyle Twp. * |
| Lac D'Aminante Du Quebec Ltee. | Timmins * |
| Lac Minerals | Hemlo * |
| Lac Minerals, (Macassa Div.) | Kirkland Lake |
| Madeleine Mines Ltd./Boise Minerals Inc. | Jaffray-Melick Twp.* |
| Mattabi Mines Ltd. | District of Kenora |
| Maude Lake Mine | Carr Twp. * |
| McFinley Red Lake Mines Ltd. | Bateman Twp. * |
| Minnova Inc. | Schreiber * |
| Mitchum Resources Inc. | Madoc Twp. * |
| Muscocho Explorations Ltd. | Finan Twp. ,Goundreau* |
| Muscocho Explorations Ltd. | Osway Twp. * |
| Muscocho Explorations Ltd. | Wawa * |
| Noranda Hemlo Inc. | Marathon |
| Noranda Inc. Lyon Lake Division | Thunder Bay District |
| Noranda Mines Ltd., (GECO Division) | Manitouwadge |
| Nuinsco Resources Ltd. | District of Kenora * |
| Orofino Resources Inc. | Howard Twp.* |
| Orofino Resources Inc. | Silk Twp. * |
| Pamour Porcupine Mines, (Pamour Site) | Timmins |

* to be included in future reports

**0400 METAL MINING AND REFINING** continued ....

| | |
|---|---|
| Pamour Porcupine Mines, (Schumacher Division) | Timmins |
| Placer-Dome Inc., (Campbell Red Lake Mine) | Golden Township |
| Placer-Dome Inc., (Dona Lake MIne) | Pickle Lake* |
| Placer-Dome Inc., (Dome Mine) | South Porcupine |
| Renabie Gold Mines Ltd. | Renabie * |
| Rio Algom Ltd., (Lancor/Nordic) | Elliot Lake* |
| Rio Algom Ltd., (Panel Mill) | Elliot Lake |
| Rio Algom Ltd., (Pronto) | Elliot Lake* |
| Rio Algom Ltd., (Quirke Mill) | Elliot Lake |
| Rio Algom Ltd., (Stanleigh Mill) | Elliot Lake |
| Sandy K. Mines Ltd. | Gowganda * |
| Scadding Mine | Scadding Twp. * |
| Sherman Mine | Temagami |
| St. Andrew Gold Fields | Taylor Twp. * |
| St. Andrew Gold Fields | Stock Twp. * |
| St. Joe Canada Ltd. | District of Kenora * |
| Tandem Resources/Storimin Exploration | Moss Twp. * |
| Teck-Corona Inc. | Marathon |
| The Algoma Steel Corp. Ltd., (Ore Div.) | Wawa |
| The Canadian Salt Company Ltd. | Windsor |
| The Sherman Mine | Temagami * |
| Victoria Porcipine Resources | Ogden Twp. * |
| Wabigoon Dev. Inc. | Timmins * |

**0500 IRON AND STEEL**

| | |
|---|---|
| Atlas Steel Company Ltd. | Welland |
| Dofasco | Hamilton |
| Ivasco, (near Hawkesbury) | L'Orignal* |
| Lasco | Whitby* |
| Stelco Inc. | Hamilton |
| Stelco Inc., (Lake Erie Works) | Nanticoke |
| The Algoma Steel Corporation Ltd. | Sault Ste. Marie |

* to be included in future reports

**0600 ELECTRIC POWER GENERATION**

| | |
|---|---|
| Ontario Hydro, Atikokan TGS | Atikokan* |
| Ontario Hydro, J.C. Keith TGS | Windsor* |
| Ontario Hydro, Lennox TGS. | Frederickberg* |
| Ontario Hydro, R.L. Hearn TGS | Toronto* |
| Ontario Hydro, Nanticoke TGS | Nanticoke |
| Ontario Hydro, Lakeview TGS | Toronto |
| Ontario Hydro, Lambton TGS | Courtright |
| Ontario Hydro, Thunder Bay TGS | Thunder Bay |
| Ontario Hydro, Darlington NGS | Bowmanville* |
| Ontario Hydro, Darlington Construction | Bowmanville* |
| Ontario Hydro, Bruce Nuclear, Domestic Treatment Services | Tiverton |
| Ontario Hydro, Bruce Nuclear, Heavy Water Plant | Tiverton |
| Ontario Hydro, Bruce Nuclear, NGS A and B | Tiverton |
| Ontario Hydro, Pickering NGS A and B | Pickering |
| AECL Douglas Point NGS | Tiverton* |
| AECL Nuclear Power Demonstration WMS | Rolphton* |
| AECL Chalk River Nuclear Laboratory | Chalk River |
| Ontario Hydro, Sir Adam Beck2 GS | Queenston* |
| Ontario Hydro, Pine Portage GS | Nipigon River * |

**0700 INORGANIC CHEMICALS**

| | |
|---|---|
| Albright and Wilson Americas | Dunnville* |
| Allied Canada Ltd. | Amherstburg* |
| Cabot Canada Ltd. | Sarnia* |
| Columbian Chemicals Canada Ltd. | Hamilton* |
| CIL Inc. | Courtright |
| CIL Inc. (Chlor Alkali and CONPAC Facilities) | Cornwall |
| Cyanamid Canada Inc. | Niagara Falls |
| Cyanamid Canada Inc., (Welland Plant) | Niagara Falls |
| Explosives Technologies International, (formerly Du Pont Canada) | North Bay |
| Electro-Minerals (Canada) Inc., (formerly SOHIO) | Niagara Falls |
| Fiberglas Canada Inc. | Sarnia |

* to be included in future reports

**0700 INORGANIC CHEMICALS** ....continued

| | |
|---|---|
| General Chemical Canada Ltd. | Amherstburg |
| IMC Corporation | Dunnville |
| Nitrochem Inc. | Maitland |
| Norton Advanced Ceramics of Canada Inc. | Niagara Falls |
| Partek Insulation Ltd. | Sarnia* |
| Sulco Chemicals Ltd. | Elmira* |
| The Exolon-ESK Company of Canada Ltd. | Thorold |
| Union Carbide Canada Ltd. | Welland * |
| Washington Mills Limited | Niagara Falls |
| Welland Chemicals Ltd. | Sarnia* |

**0800 METAL CASTING**

| | |
|---|---|
| A.H. Tallman Bronze Ltd. | Burlington* |
| Alloy Casting Industries Ltd. | New Hamburg* |
| Armada Toolworks Limited | West Hill * |
| Bibby - St. Croix Foundries Ltd. | Cambridge* |
| Birla Industries Inc. | Windsor* |
| Bowmanville Foundry Co. Ltd. | Bowmanville* |
| Brampton Foundries Limited | Brampton |
| Canron Inc. Pipe Div. | Hamilton * |
| Chrylser Canada Ltd. | Etobicoke* |
| Crowe Foundry Ltd. | Cambridge* |
| Designed Precision Castings Inc. | Brampton * |
| Dunbar Aluminum | Kitchener* |
| Electroline Manufacturing Company Ltd. | Windsor* |
| Falconbridge Limited | Orillia * |
| Fahramet | Orillia* |
| Ford Motor Co. of Canada Ltd. | Windsor |
| Franklin Electric of Canada Ltd. | Strathroy * |
| General Motor of Canada Ltd. | St. Catharines |
| Haley Industries Ltd. | Haley* |
| Industrial Fine Castings Limited | Bolton * |
| Johnson Matthew Ltd. | St. Catharines* |
| Magalloy Ltd. | Stratford * |

* to be included in future reports

**0800 METAL CASTING** continued....

| | |
|---|---|
| Richmond Die Casting Co. Ltd. | Cornwall* |
| Western Foundry Co. Ltd. | Wingham* |
| Wilcon Products Division | Maple* |

**0900 INDUSTRIAL MINERALS** (TENTATIVE LIST)

| | |
|---|---|
| Arriscraft Corporation | Cambridge* |
| Beachvilime Ltd. | Woodstock* |
| Bertrand and Frere Construction Co. | L'Orignal* |
| Burnside Sand and Gravel Ltd. | Nepean* |
| Canada Building Materials Co. | London* |
| Canadian Gypsum Company | (Haggersville)*, Haldimand* |
| Canada Talc | Madoc,* Mamora* |
| Capital Paving Inc. | Guelph* |
| Dibblee Construction Ltd. | Ottawa* |
| Domtar Construction Materials | (Caledonia)* Haldimand* |
| Dufferin Aggregates | Downsview* |
| Dymond Clay Products Ltd. | Haileybury* |
| Ethier Sand and Gravel Ltd. | Sudbury* |
| Gormley Aggregates | Gormley* |
| Guelph Dolime Ltd. | Guelph* |
| Federal White Cement | Woodstock* |
| Fowler Construction Co. Ltd. | Bracebridge* |
| Francon, Div. of Lafarge Canada Inc. | Ottawa* |
| Indusmin | Havelock,* Midland,* Sudbury* |
| Lafarge Canada Inc. | Woodstock* and Bath* |
| Lake Ontario Cement | Picton* |
| Oxford Sand and Gravel Ltd. | Woodstock* |
| Reiss Lime Co. of Canada Ltd. | Blind River* |
| Steetley Industries | Timmins, Dundas* |
| Stelco Chem. Lime Works | Ingersoll* |
| St. Lawrence Cement | Mississauga* |
| St. Marys Cement | Bowmanville* and St. Marys * |
| The Murray Group Ltd. | Moorefield* |

* to be included in future reports

**0900 INDUSTRIAL MINERALS continued ...**

| | |
|---|---|
| A.B. McLean Ltd. | Sault Ste. Marie* |
| Allan G. Cook Ltd. | Barrie* |
| Amherst Quarries (1969) Ltd. | Amherstburg* |
| Beaver Asphalt Paving Co. Ltd. | Ottawa* |
| Canada Building Materials Co. , (St. Marys Cement) | Sunderland* |
| Cayuga Materials and Construction | Haldimand* |
| Chromasco Ltd. | Haley* |
| Cruickshank Construction Ltd. | Morrisburg* |
| Dunville Rock Products | Dunville* |
| Flamboro Quarries Ltd. | Dundas* |
| Frank Kling Ltd. | Seaforth* |
| George W. Drummond Ltd. | Nepean* |
| Halton Crushed Stone | Milton* |
| Huron Gravel Ltd. | Chatham* |
| H.J. McFarland Construction Co. | Belleville* and Nepean* |
| JA and DA Thomson Construction Ltd. | Campbellford* |
| Kam Aggregates | Thunder Bay* |
| Karson Kartage and Konstruction Ltd. | Carp* |
| M.J. Labelle Co. Ltd. | Cochrane* |
| Milton Limestone (LAC Minerals) | Milton* |
| National Slag Ltd. | Hamilton* |
| Pinewood Aggregates Ltd. | Lakefield* |
| Saugeen Aggregates Ltd. | Hanover* |
| Spratt Sand and Gravel Ltd. | Stittsville* |
| Springbank Sand and Gravel | Milton* |
| Standard Aggregates | (Haggersville)* |
| | Haldimand,* Brehin* |
| Thomas Cavanagh Construction Ltd. | Ashton* |
| Towland-Hewitson Construction Ltd. | Downsview* |
| TRT Sand and Gravel | Orono* |
| United Aggregates | Brampton* |
| Walker Brothers Quarries Ltd. | Thorold* |
| Westroc Industries Ltd. | Mississauga,* Drumbo* |
| Whitechurch Aggregates, (Lake Ontario Cement) | Wingham* |
| William R. Barnes Co. | Waterloo* |

* to be included in future reports

**0900 INDUSTRIAL MINERALS continued ...**

| | |
|---|---|
| Barmin Inc. | Kaladar* |
| Brampton Brick | Brampton* |
| Canada Brick | Russel,* Gloucester,* Milton,* Mississauga,* Burlington* |
| Extender Minerals | Matachewan* |
| Granite Quarries Inc. | Vermilion Bay* |
| Hedman Resources (Timmins) | Matheson* |
| I.K.O. Industries Ltd. | Madoc* |
| Manitoulin Dolomite | Sudbury* |
| Martin Clay Products | Georgetown* |
| Nelson Aggregate Co. | Burlington* |
| Nelson Granite Inc. | Vermilion Bay* |
| Queenston Quarries | Niagara Falls* |
| Roseval Silica Inc. | Porcupine* |
| Steep Rock Calcite | Perth* |
| Stoklosar Marble Quarries Ltd. | Madoc* |
| Woods Sand and Gravel Ltd. | Kingston* |
| Yundt Brothers Construction Ltd. | Stratford* |
| 3M Canada | Havelock* |

**METAL PLATING AND PLASTIC FABRICATORS**

| | |
|---|---|
| American Standard Division of Wabco Standard | Cambridge |
| Blackstone Industrial Products | Stratford |
| Fleet Manufacturing Company Ltd. | Fort Erie |
| Ford Motor Company of Canada Ltd. | Niagara Falls |
| GNB Batteries Canada Ltd. | Fort Erie |
| Mitsubishi Electronics Ltd. | Midland |
| Stanley HardwareDiv. of Stanley Canada Inc. | New Hamburg |
| Stelco Page Hersey Works | Welland |
| Stelco Welland Tube Works | Welland |
| Wickes Manufacturing Co. Ltd. | Windsor |

* to be included in future reports

**FOOD PROCESSORS**

| | |
|---|---|
| Campbell Soup Company Ltd. | St. Marys |
| Canadian Canners Ltd. | St. David |
| CASCO. Ltd. | Cardinal |
| Champlain Industries Ltd. | Tara |
| Corby Distilleries Limited | Corbyville |
| Gay Lee Foods Cooperative Ltd. | Teeswater |
| H.J. Heinz Company of Canada Ltd. | Leamington |
| J.M. Schneider Inc. | Ayr |
| Kraft Foods Ltd. | Ingleside |
| Nestle | Chesterville |
| Ogilvie Mills | Thunder Bay |
| Omstead Foods Ltd. | Wheatley |
| Rothsay Ltd. | Rothsay |
| Tend-R-Fresh Ltd., (Div. of Maple Leaf Mills) | Petersburg |

**Miscellaneous**

| | |
|---|---|
| Chesapeake and Ohio Railway Co. Ltd. | St. Thomas |
| Domtar Wood Preserving Ltd. | Trenton |
| Northern Wood Preserving Ltd. | Thunder Bay |
| Ford Motor Company of Canada Ltd. | Oakville |
| Ford Motor Company of Canada Ltd. | St. Thomas |

## APPENDIX E

## POLLUTANTS AND THEIR SIGNIFICANCE

In the Great Lakes context, overall loadings are the important measure of potential impact. The pollutants monitored and controlled by the Ministry of the Environment fall into one of four major groups defined by the International Joint Commission: Physical (settleable and suspended solids, temperature); chemical (persistent toxics, non-persistent toxics and others); microbiological; and radiological. The Ontario Ministry of the Environment document, Rationale For The Establishment of Ontario's Water Quality Objectives, September, 1979, provides additional information on the significance of these pollutants.

### E.1 PHYSICAL

Under quiescent conditions suspended solids settle to the bottom where they may destroy fish spawning grounds and smother benthic organisms -- the basic food for many fish. Suspended solids may also plug fish gills. Nonsettleable solids in water increase turbidity, which reduces light penetration and thus restricts phytoplankton production. Thermal discharges from electricity generating stations can, if too hot, act as a thermal barrier that prevents cold water fish from entering the receiving waters.

### E.2 CHEMICAL

1. Persistent Toxics

Toxic substances are defined (G.L.W.Q.A. Article 1 (1)) as substances that "can cause death, disease, behavioural abnormalities, cancer, genetic mutations, physiological or reproductive malfunctions or physical deformities in an organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances. Persistent toxics are defined (G.L.W.Q.A. Annex 12 (1)) as "a toxic substance with a half life in water greater than eight weeks". Half life means the time required for the concentration of the substance to diminish to one-half its original value in the water body.

Phthalic acid esters, including dibutyl phthalate, diphthalate and other phthalates, are found in the effluent of certain organic chemical manufacturing plants and are toxic to aquatic life. Polychlorinated Biphenyls (PCBS), are persistent in the environment and tend to accumulate in fish and sediments. PCB concentration limits in fish tissue protect birds and animals that eat the fish. The concentration of metals, including arsenic, cadmium, chromium, copper, iron, lead, mercury, nickel and selenium, is controlled to protect aquatic life or drinking water. Fluoride levels in surface waters are also limited (to a concentration of 1.2 milligrams per litre) to protect drinking water.

2. Non-Persistent Toxics

Non-persistent toxics have a half life in water of less than eight weeks and include various types of oils and waxes as well as ammonia-nitrogen. Oil and petrochemicals cause a visible sheen and impart an odour in receiving waters. In addition, they taint edible aquatic life and often cause deposits on nearby shores. Hydrocarbons are discharged by petroleum refineries and primary steel plants; animal fats, greases and vegetable oils from food processors; and soaps, greases, vegetable oils and waxes from soap manufacturers.

Ammonia-nitrogen is found in the effluent of primary steel producers, ore concentrating mills, fertilizer plants, petroleum refiners, synthetic organic factories and food processors. Depending on water temperature and pH, ammonia-nitrogen dissociates in varying amounts, forming un-ionized ammonia which is toxic to aquatic life. Hydrogen sulphide at undissociated concentrations above 2.0 micrograms per litre adversely affects aquatic life and also imparts a disagreeable odour to water.

3. Other Substances

The concentration of dissolved oxygen in water is lowered by the oxygen-demanding degradation of biodegradable materials. If too much oxygen is consumed by the biodegradable effluent in the receiving waters (i.e. if the Biochemical Oxygen Demand or BOD is too great), aquatic organisms can be adversely affected.

Often Chemical Oxygen Demand or Total Organic Carbon are used in place of the BOD test.

Although phosphorus is essential to plant growth and microorganism activity, too much causes excess algae, weed and slime growth. Phenolics, a group of organic substances, can adversely affect the taste of water and fish. At certain concentrations, phenolics in steel mill effluent are toxic to aquatic life forms. Phenolic compounds occur naturally in wood, coal and crude oil.

## E.3 MICROBIOLOGICAL

Water used for body contact recreation activities should be substantially free from bacteria, fungi, or viruses that may produce enteric disorders or eye, ear, nose, throat and skin infections or other diseases and infections. Where any industrial effluent contains simple sugars, these compounds serve as food for bacterial growth. For each situation, the source has been required to segregate and treat separately its sanitary wastes.

## E.4 RADIOLOGICAL

Radioactive pollutants, most commonly found in the nuclear fuel industry, are toxic in certain concentrations. The IJC agreement sets a limit of TED 50 (total equivalent dose integrated over 50 years calculated in accordance with IJC methodology) greater than 1 millirem to the whole body from a daily ingestion of 2.2 litres of lake water per day for one year.

## E.5 HAZARDOUS POLLUTANTS

Annex 10, G.L.W.Q.A. contains two lists of compounds. One list is titled Hazardous Polluting Substances; the other, Potential Hazardous Polluting Substances. Ten inorganic chlorides are classified as hazardous and three as potentially hazardous. Cobalt is extremely toxic to fish. Three cobalt compounds are classified as hazardous.

Magnesium, an essential element for plant and animal life, can cause a cathartic action on the gastro-intestinal tract when present in drinking water in concentrations over 125 milligrams per litre. Water containing this concentration may also have a disagreeable taste.

At concentrations above 250 milligrams per litre, sulphates in raw drinking water may cause a similar effect to excessive magnesium. Ten sulphate compounds are classified Hazardous and three, Potentially Hazardous.

## APPENDIX F

## FEDERAL AND PROVINCIAL GUIDELINES AND REGULATIONS

This appendix is a list of Federal and provincial guidelines and regulations used to set effluent requirements. Where the limit in the guideline or regulation is a concentration number, i.e. milligrams per litre, this limit has been converted into a loading limit (as used in Appendix A, where flows are available). Multiplying the concentration limit by the flow rate times a conversion factor results in a loading requirement or guideline number. The lists shown below are extracts from the respective document identified. For a more detailed description of the guidelines and regulations refer to the particular document listed.

### F.1. Control Order or Requirement and Direction

- (discharge limits may be specified as requirements)

### F.2 Certificate of Approval

- (discharge limits may be specified as requirements)

### F.3 Objectives for the Control of Industrial Waste Discharges in Ontario (Provincial)

| | |
|---|---|
| Biochemical Oxygen Demand | 15.0 mg/L maximum |
| Suspended Solids (Residue Particulate) | 15.0 mg/L maximum |
| Oil and Grease (Solvent Extractables) | 15.0 mg/L maximum |
| Metals | |
| - cadmium | 0.001 mg/L maximum |
| - chromium | 1.0 mg/L maximum |
| - copper | 1.0 mg/L maximum |
| - lead | 1.0 mg/L maximum |
| - mercury | 0.001 mg/L maximum |
| - nickel | 1.0 mg/L maximum |
| - phosphorus | 1.0 mg/L max., or < 4.54 kg/day |
| - tin | 1.0 mg/L maximum |
| - zinc | 1.0 mg/L maximum |

NOTE - Total quantity of metals discharged will also be considered and dilution with clean water streams to achieve the above concentrations is not acceptable.

| | |
|---|---|
| Phenols | 0.02 mg/L maximum |
| Ammonia ($NH_3$ as N) | 10.0 mg/L maximum |
| pH | range of 5.5 to 9.5 |
| Sulphates, Chlorides, Dissolved solids | Keep as low as possible, through best available, practicable technology. |
| Temperature | 11 degrees Celsius maximum - above receiving water temperature. |

## F.4 Provincial Liquid Effluent Guidelines for the Petroleum Refining Industry (Provincial)

| | |
|---|---|
| Oil and Grease (Solvent Extractables) | 15.0 mg/L maximum |
| Phenols | 0.02 mg/L maximum |
| Suspended Solids (Residue Particulate) | 15.0 mg/L maximum |
| Ammonia ($NH_3$ as N) | 10.0 mg/L maximum |
| Chemical Oxygen Demand (COD) | 200 mg/L maximum * |
| pH | range of 5.5 to 9.5 |
| Metals - chromium | 1.0 mg/L maximum |
| - copper | 1.0 mg/L maximum |
| - lead | 1.0 mg/L maximum |
| - zinc | 1.0 mg/L maximum |
| - nickel | 1.0 mg/L maximum |

* Interim objective based on capability of current best practicable technology; may be revised as alternative technology becomes available and where indicated by demonstrated adverse effects on receiving water quality.

## F.5 Guidelines for Environmental Control in the Ontario Mineral Industry (Provincial) - 1981

| | |
|---|---|
| Biochemical Oxygen Demand | 15.0 mg/L maximum |
| Oil and Grease (Solvent Extractables) | 15.0 mg/L maximum |
| Metals (excluding calcium, magnesium, potassium and sodium) | 1.0 mg/L maximum |
| Cumulative concentration of copper, lead, zinc and nickel | 1.0 mg/L maximum |
| Cadmium, mercury | Background concentration or less |
| pH | range of 5.5 to 10.6 |
| Ammonia ($NH_3$ as N) | 10.0 mg/L maximum |
| Phosphorus | 1.0 mg/L max., or < 4.54 kg/day |
| Arsenic | 0.5 mg/L maximum |
| Cyanide | 2.0 mg/L maximum |
| Phenols | 0.02 mg/L maximum |
| Sulphates, dissolved solids - | Keep as low as possible using best practicable technology |

## F.6 Pulp and Paper Effluent Regulations, Ottawa 1972 (Federal)

Limits shown on the Wastewater Discharge Summary sheets and accompanying tables are from Control Orders and may be based on Federal Regulations. The limits are generally set on a site-specific basis. See Table 6 of this report. The table shows Biochemical Oxygen Demand and Total Suspended Solids limits for each mill in the report.

## F.7 The Chlor-Alkali Mercury Liquid Effluent Regulations, Ottawa 1977 (Federal)

2.50 grams of mercury per tonne of a plant's reference production rate (normally the arithmetic mean of actual daily production of chlorine during the previous month, excluding days when there was no production).

## F.8 Atomic Energy Canada Limited licence limits. (Federal)

AECL limits are set on a site-specific basis for specific parameters.

## F.9 Metal Mining Liquid Effluent Regulations and Guidelines, Ottawa 1977 (Federal) Authorized Levels of Substances

| Item | Substance | Column I Maximum Authorized Monthly Arithmetic Mean Concentration | Column II Maximum Authorized Concentration in a Composite Sample | Column III Maximum Authorized Concentration in a Grab Sample |
|---|---|---|---|---|
| 1 | Arsenic | 0.5 mg/L | 0.75 mg/L | 1.0 mg/L |
| 2 | Copper | 0.3 mg/L | 0.45 mg/L | 0.6 mg/L |
| 3 | Lead | 0.2 mg/L | 0.3 mg/L | 0.4 mg/L |
| 4 | Nickel | 0.5 mg/L | 0.75 mg/L | 1.0 mg/L |
| 5 | Zinc | 0.5 mg/L | 0.75 mg/L | 1.0 mg/L |
| 6 | Total Suspended Matter | 25.0 mg/L | 37.5 mg/L | 50.0 mg/L |
| 7 | Radium-226 | 0.5 pCi/L | 20.0 pCi/L | 30.0 pCi/L |
| 8 | pH | 6.0 minimum | 5.5 minimum | 5.0 minimum |

Note: The concentrations are given as total values with the exception of radium-226 which is a dissolved value after filtration of the sample through a 3 micron filter.

The acceptable levels of substances in the Metal Mining Liquid Effluent Guidelines have the same numercial values as the authorized levels of deleterious substances prescribed in the Metal Mining Liquid Effluent Regulations.

## F.10 Interim Pulp and Paper Effluent Guidelines, Ontario 1970

Concentration limits:

50 milligrams per litre for Total Suspended Solids

50 milligrams per litre for Biochemical Oxygen Demand

are acceptable on an interim basis for effluents from pulp and paper mills. Where a mill reduces the effluent volume by water conservation and by recycling, these concentrations may be expected.

## F.11 Guidlines for the Control of Industrial Phosphorus Discharges In Liquid Effluents - Ontario (October 1976)

The effluent objective for industrial phosphorus discharges is 1 mg/l maximum total phosphorus. Plants with discharges of less than 4.54 kg/day total phosphorus are exempted from these guidelines.

## APPENDIX G

## ANALYSIS OF TRACE CONTAMINANTS

Great advances have been made in the field of contaminant analysis. In the 1950's, prevailing methods could measure effluent pollutants in the parts per thousand (or .01%) range. Methods have improved now so that some organic and most inorganic pollutants can be accurately identified and quantified in the parts per trillion range.

In the 1950's, an advance was made in organic chemical analysis with the commercial development of gas chromatographs (GC). The functions of a GC are as follows.

(a) Separation of a mixture of compounds into individual components (usually relies on the compound's physical and chemical nature, volatility, polarity, molecule size, etc.).
(b) Detection and quantification of each individual compound as it is eluted (the detector response is proportional to the concentration). However, the resolution for complex mixtures was limited and other confirmatory techniques like infrared analysis were needed.

In the mid 1960's, scientists developed ways of interfacing a mass spectrometer (MS) to a gas chromatograph. Thus, the MS became, in essence, a very specialized and highly sophisticated detector for the GC. With these two instruments coupled together, the individual compound separated by the GC enters the MS and a "finger-print" known as a mass spectrum is produced. This mass spectrum is compared with all those stored in a computer library associated with the instrument and if a match is found the compound is identified.

In the period between 1975 and 1980, GC/MS instrumentation advanced significantly, especially with regard to the computer search capabilities and libraries. The new instruments were programmed to allow rapid identification of an unknown compound by comparing its mass spectrum with over 30,000 organic compounds in a reference library.

GC/MS has been the major instrument used in various trace contaminant studies made by Ministry of Environment (MOE),Environment Canada (E.C.), U.S. Environmental Protection Agency (EPA), Petroleum Association for the Conservation of the Canadian Environment (PACE), American Petroleum Institute (API), National Council for Air and Stream Improvement of Pulp and Paper Industry of the USA (NCASI), Chemical Manufacturers Association (CMA) and others.

At the same time, methods such as atomic emission and atomic absorption spectrophotometry have been developed to permit rapid, sensitive, multi-element metal analysis.

For specific treated industrial effluents like those from Ontario's petroleum refineries, organic chemicals and the iron and steel industry, these advances in analytical methods have resulted in the identification and quantification of some organic compounds in the parts per trillion range.

Trace contaminant data included in MISA Pilot Site investigations and the Upper Great Lakes Connecting Channels Studies are as follows:

| Source | Samples Taken | | Data Report Release | Conven-tionals | Metals | Vola-tiles | Extract ables | Pesti-cides | PCBs |
|---|---|---|---|---|---|---|---|---|---|
| | Year | # | | | | | | | |
| St. Mary's Paper | 1986 | 23 | 1989 | x | x | x | x | - | x |
| | 87-88 | 156 | 1989 | x | x | x | x | x | x |
| Algoma Steel | 1986 | 91 | 1989 | x | x | x | x | - | x |
| | 87-88 | 622 | 1989 | x | x | x | x | x | x |
| CIL (Courtright) | 1986 | 1 | 1988 | x | x | x | x | - | x |
| Chinook Chemicals | 1986 | 1 | 1988 | x | x | x | x | - | x |
| DOW Chemical | 1987 | 83 | 1989 | x | x | x | x | - | x |
| | 1988 | 27 | 1989 | x | x | x | x | - | x |
| ESSO Petroleum | 1985 | 1 | Jan 1986 | - | - | x | x | x | x |
| | 1986 | 5 | 1988 | x | x | x | x | - | x |
| ESSO Chemicals | 1985 | 1 | 1988 | - | - | x | x | x | x |
| | 1986 | 1 | 1988 | x | x | x | x | - | x |
| Ethyl Corp. | 1986 | 5 | 1988 | x | x | x | x | - | x |
| Dupont (Corunna) | 1986 | 1 | 1988 | x | x | x | x | - | x |
| Petrosar (Polysar) | 1986 | 5 | 1988 | x | x | x | x | - | x |
| Polysar | 1987 | 41 | 1989 | x | x | x | x | - | x |
| Shell Oil | 1986 | 5 | 1988 | x | x | x | x | - | x |
| Suncor | 1985 | 1 | 1988 | - | - | x | x | x | x |
| | 1986 | 5 | 1988 | x | x | x | x | - | x |
| Union Carbide (Corunna) | 1986 | 3 | 1988 | x | x | x | x | - | x |
| Lambton Generating | 1986 | 1 | 1988 | x | x | x | x | - | x |
| Ford (Windsor) | 1985 | 5 | 1988 | x | x | x | x | - | x |
| Wickes (Windsor) | 1985 | 3 | 1988 | x | x | x | x | - | x |
| General Chemical (Amherstberg) | 1985 | 5 | 1988 | x | x | x | x | - | x |

Note: X means analysis was or will be done.
Not every sample was analyzed for all contaminant groups.

Trace contaminant data are also found in the following Ministry of the Environment/Environment Canada reports (publication date) which summarize joint surveys carried out by both federal and provincial officials:

1. NRTC Appendix Report: Canadian Point Sources To The Niagara River Final Report on MOE and EPS 1981/82 Surveys (1985) (Published)

2. St. Clair River Pollution Investigation (Sarnia Area) Ministry of the Environment - Environment Canada (June 1986)

3. Preliminary Report - St. Clair River MISA Pilot Site Investigation - Vol 1, Parts I and II Ministry of the Environment (November 1987) G. Johnson (editor)

This report contains information on the following companies: DOW Chemical (1986 survey) and Polysar (Sarnia), (1986 survey).

4. Upper Great Lakes Connecting Channels Study - Point Source Survey Ministry of the Environment - Environment Canada (in preparation - 1988)

This report contains information on the following companies: CIL (Courtright), Chinook Chemicals, DOW Chemical - (1985 survey), ESSO Petroleum/Chemicals, Ethyl Corp., DuPont (Corunna), Polysar (Sarnia) - (1985 survey), Petrosar, Shell Oil, Suncor, Union Carbide (Corunna), Lambton Generating Station, Ford (Windsor), Wickes Manufacturing (Windsor) and General Chemical (Amherstberg), St. Marys Paper (Sault Ste. Marie) and The Algoma Steel Corp. (Sault Ste. Marie) (1986 Survey).

5. Implementation of Recommendations of the 1986 St. Clair River Pollution Investigation Report, Ontario Ministry of the Environment, Water Resources Branch and Environment Canada (February 1988)

## APPENDIX H

## Ontario Ministry of the Environment

### Regional Offices

The Director
Southwest Region
985 Adelaide Street South
London, Ontario

The Director
West Central Region
119 King Street West
12th Floor
Hamilton, Ontario

The Director
Central Region
7 Overlea Blvd.
4th Floor
Toronto, Ontario
M4H 1A8

The Director
Southeastern Region
133 Dalton Street
P.O. Box 820
Kingston, Ontario

The Director
Northeastern Region
199 Larch Street
Sudbury, Ontario
P5E 5P9

The Director
Northwestern Region
435 James Street South
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

## APPENDIX H ...continued

## Ontario Ministry of the Environment

## District Offices

### Central Region

Halton-Peel District Office
1226 White Oaks Blvd.
Oakville, Ontario
L6H 2B9

Barrie District Office
12 Fairview Road
Barrie, Ontario
L4N 4P3

Peterborough District Office
139 George Street North
Peterborough, Ontario
K9J 3G6

Muskoka Haliburton District Office
Gravenhurst Plaza General Delivery
Gravenhurst, Ontario
P0C 1G0

### Northeast Region

North Bay District Office
Northgate Plaza Suite 109,
1500 Fisher Street
North Bay, Ontario
PIB 2H3

Sudbury District Office
199 Larch Street, 11th floor
Sudbury, Ontario
P5E 5P9

Sault Ste. Marie District Office
445 Albert Street East
Sault Ste. Marie
P6A 2J9

Timmins District Office
83 Algonquin Blvd. W.
Timmins, Ontario
P4n 2R4

### Northwest Region

Thunder Bay District Office
435 James Street South, 3rd floor
P.O. Box 5000
Thunder Bay, Ontario
P7C 5G6

Kenora District Office
808 Roberston Street
Kenora, Ontario
P9N 1X9

### Southeast Region

Cornwall District Office
205 Amelia Street
Cornwall, Ontario
K8H 3P3

Ottawa District Office
2378 Holly Lane 2nd floor
Ottawa, Ontario
K1V 7P1

Kingston District Office
P.O. Box 820
133 Dalton Avenue
Kingston, Ontario
K7L 4X6

**Southwest Region**

Sarnia District Office
265 Front Street
Sarnia, Ontario
N7T 7X1

Windsor District Office
6th floor - 250 Windsor Avenue
Windsor, Ontario
N9A 6V9

Owen Sound District Office
1180 - 20th Street
Owen Sound, Ontario
N4K 6H6

**West Central Region**

Haldimand/Norfolk Brant
Box 2112
119 King Street West, 9th floor
Hamilton, Ontario
L8N 3Z9

Hamilton District Office
Box 2112
119 King Street West, 9th floor
Hamilton, Ontario
L8N 3Z9

Cambridge District Office
P.O. Box 219, 400 Clyde Road
Cambridge, Ontario
N1R 5T8

Welland District Office
637 - 641 Niagara North
Welland, Ontario
L3C 1L9

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